

NOTEBOOKS



Armada 1750 \$2,799

The fully integrated, durable notebook from Compaq that combines the latest key technology with uncompromising value.

- Mobile Intel® Pentium® II processor 333 MHz
- 6.4 GB SMART Hard Drive
- 64 MB SDRAM (expandable to 192)
- 14.1" (1024 x 768) display
- Powerful ACP Graphics
- 24X CD-ROM

- Integrated 56K V.90 modem*
- Integrated AC adapter
- Intelligent Manageability pre-installed
- Optional convenience base with integrated Ethernet
- 1-year worldwide limited warranty*

Armada 3500 \$2,599

The lightest notebook from Compaq, weighing as little as 4.4 lbs. and only 1.3" thin.

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- 4.1 GB SMART Hard Drive
- 32 MB SDRAM (expandable to 460 MB)
- 12.1" TFT (800 x 600) display
- Magnesium-alloy display casing for durability
- Optional CD-ROM or DVD via Mobile Expansion Unit
- Intelligent Manageability pre-installed
- 3-year worldwide limited warranty*

Armada 7400 \$3,199

The lightweight, durable notebook delivering an optimal combination of desktop equivalence and mobility.

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- 64 MB SDRAM (expandable to 192 MB)
- 13.3" TFT (1024 x 768) display
- Powerful ACP Graphics
- Integrated 56K V.90 modem*
- 24X CD-ROM
- Magnesium-alloy casing for durability
- Intelligent Manageability pre-installed
- 3-year worldwide limited warranty*

These Compaq Armada Notebooks support:

- Multitask design for easy swapping of options
- Network Environment Optimization
- Certification for multiple operating systems, including Windows NT® 4.0 (Microsoft® Windows® 95 standard)

SERVERS



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- Supports up to 4 GB Registered 100 MHz SDRAM
- Supports up to 109.3 GB internal Hot Plug Storage
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- "Recommended" VAR Business 2/99

All Compaq ProLiant servers feature:

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- Up to four Pentium III Xeon® 500 MHz processors
- Push-button PG Hot Plug
- Wide Ultra3 SCSI Hot Plug hard drive support
- True rack-mount chassis with tool-free design for enhanced serviceability

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- ATI RAGE PRO TURBO ACP
- Compaq PremierSound

- Compaq V500 15" (13.8" viewable) monitor
- Microsoft Windows 95 pre-installed
- 3-year limited warranty*

Deskpro EN Series Desktop 6350/4300 **\$1,269**

- Intel Pentium II processor 350 MHz
- 32 MB SDRAM
- 4.3 GB SMART II Ultra ATA Hard Drive
- ATI RAGE PRO TURBO ACP
- Compaq PremierSound
- Compaq V500 15" (13.8" viewable) monitor
- Microsoft Windows 95 pre-installed
- 3-year limited warranty*

Deskpro EN Series Desktop 6450/10000/CDS **\$1,959**

- Intel Pentium II processor 450 MHz
- 64 MB SDRAM
- 10 GB SMART II Ultra ATA Hard Drive

- 32X Max CD-ROM
- ATI RAGE PRO TURBO 2X ACP
- Compaq 10/100 TX PCI Intel NIC with Remote Wakeup
- Compaq PremierSound
- Compaq V500 17" (15.7" viewable) monitor
- Microsoft Windows NT Workstation 4.0 pre-installed
- 3-year limited warranty*

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- 10 GB SMART II Ultra ATA Hard Drive
- 32X Max CD-ROM
- ATI RAGE PRO TURBO 2X ACP
- Compaq 10/100 TX PCI Intel NIC with Remote Wakeup
- Compaq PremierSound
- Compaq V500 17" (15.7" viewable) monitor
- Microsoft Windows NT Workstation 4.0 pre-installed
- 3-year limited warranty*



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- Choice of affordable 6, 8 or 10 GB Ultra ATA Hard Drives or performance 4 or 9 GB Wide Ultra SCSI Hard Drives

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- 32X Max CD-ROM
- Compaq NC3121 Fast Ethernet NIC
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- 32X Max CD-ROM
- Compaq NC3161 Fast Ethernet NIC
- Tuned and optimized with Microsoft Windows NT Workstation 4.0 to provide maximum 32-bit performance

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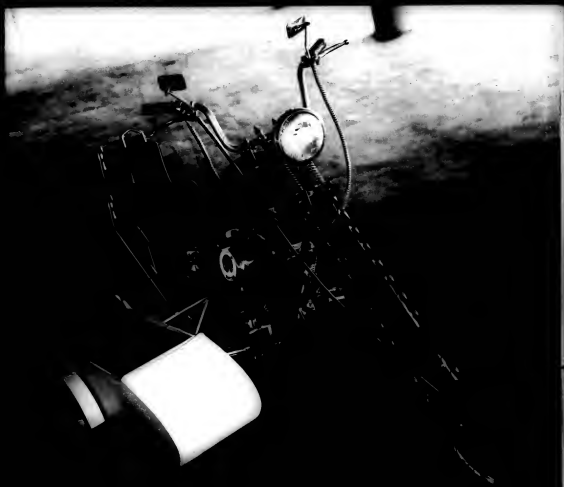
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Can power
and economy
travel in tandem?





GREP THIS!

Computerworld reporter David Orenstein (pictured) has 17 years' worth of computing savvy. Setting up a Linux workstation took every last minute of it, he reports. Page 93



WOLFPACK DIPLOMACY

Contrary to its WolfPack code name, Microsoft Cluster Service doesn't run well in packs. Yet IT managers building Windows NT clusters for critical, high-availability applications need that capability. McView Inc. CEO Rahul Mehta says his start-up specializes in tools that tame NT clusters. Page 86

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MAY 17, 1999

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"WHEN YOU
GO ...
RUNNING
TOWARD A
MACHINE
GUN
YELLING,
'FOLLOW ME!'
IF THEY
DON'T LIKE
YOU ... THEY
MAY SHOOT
YOU IN THE
BACK."

JOHN LODGON, CIO,
TECH DATA CORP.,
ON HOW THE MILITARY IS GOOD
PREPARATION FOR IT LEADERSHIP.
SEE PAGE 48

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customer's
next move



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NEWS

AT DEADLINE

Sun Reorg Targets App Developers

Sun Microsystems Inc. said it will form two new divisions July 1, including one designed to focus more attention on software developers. Alan Barszt, the Java Software unit president, will head a new software products and platforms division that includes Solaris software and consumer and embedded Java products. John McFarlane, now president of Sun's Solaris software group, will lead a new network service provider division.

Microsoft Mulls Opening Source Code

The Linux movement has Microsoft Corp. considering - but not yet embracing - the idea of making its own software open source, company President Steve Ballmer said at Tibco Software Inc.'s annual customer conference in San Francisco Thursday. Microsoft is trying to determine which portions of its source code, if any, to release and whether the code should be licensed or freely available via the Internet, Ballmer said.

Canon Surfaces As Tricord Co-CEO

CompuLink Computer Corp. co-founder Bud Carlen has assumed a temporary role as co-CEO of Tricord Systems Inc., the former mother of beleaguered "super-servers." Carlen is an investor in the Plymouth, Mass., company, is what's expected to be a one-year engagement. Carlen will help Chairman and CEO John Mitchell research Tricord as a strategic company. Carlen left leadership of CompuLink Corp., the consultancy he founded in 1992.

Net Standard Sought For XML-based Forms

Thirty vendors May 27 plan to announce a standard for business-to-business Internet forms aimed at resolving conflicting Extensible Markup Language (XML) electronic standards. The group includes SCSA Corp., Glass Systems Inc., Sun Microsystems Inc. and Netscape Communications Corp.

Bankers Anticipate Code-Breaking Machine

But users need to think about more complex security keys

BY ANN HARRISON

A computer design unveiled earlier this month could unlock messages encrypted with 512-bit encryption keys. But some businesses - including the nation's largest banking organization - already are prepared for it.

Kavika Daguio, technology policy consultant at the Washington-based American Bankers Association (ABA), said his organization is already recommending that members encrypt data with keys stronger than those commonly in use. He said ABA has recommended that members move rapidly to the Triple Data Encryption Standard (DES) for critical applications that the risk justifies it. Triple DES provides 168-bit encryption. The ABA's Ecom online banking project will use 1024-bit public keys, and 2048-bit keys for certificate authorities where applicable.

Shoot for 256

The National Institute of Standards and Technology is trying to create an advanced encryption standard. Daguio said the effort should focus on 256 bits for long-term encryption solutions instead of the current 128-bit target. "I am looking 15 to 20 years out rather than the short term," he said.

The new computer design, The Weizmann Institute Key Locating Engine (Twinkle for short), uses optical factoring techniques to determine the correct key for unscrambling

messages secured with 512-bit keys. It speeds up the "sieving" process of factoring large numbers used to attack RSA Data Security Inc.'s public-key algorithm. The algorithm is a de facto encryption standard co-developed by Adi Shamir, who designed Twinkle. Shamir estimated that the device can be built for about \$50,000 after the design process is complete.

Scientists at RSA in San Mateo, Calif., acknowledged that

Twinkle puts data encrypted with 512-bit RSA keys at greater risk. Even before learning of Twinkle, RSA scientists concluded that 512-bit keys would soon be vulnerable: the company now recommends that software developers choose a minimum key size of 768 bits for user keys and 1024 bits for enterprise keys.

Although some businesses require military-grade encryption of 2048 bits or higher,

most don't need it to secure casual communications or routine requests for information, Daguio said.

"Where you need to do the job right, overdo it a little bit. But we can't overburden business applications beyond what the security case or the business case calls for," he said. Businesses should make sure they don't rely on any one security technology, vendor or implementation to safeguard their data, Daguio added. ■

MORE ONLINE

For resources related to cryptography and encryption, such as articles, publications, Web links and FAQs, visit our Web site: www.computerworld.com/news

CARD ISSUERS PUSH SECURITY PLAN

Visa, MasterCard luring SET adopters with features and economic incentives

BY STACY COLLETT

JUST WHEN OBSERVERS were suggesting that the proposed SET security standard had foundered, proponents say it's making a comeback.

SET owners Visa International Inc. and MasterCard International Inc. said the e-commerce security technology is stable with Release 1.0. In addition, after meetings in New York last week, a Business Advisory Council representing 21 companies in 14 nations is working to promote SET adoption worldwide.

"This year, we'll start showing the implementation of the

protocol to show the market the flexibility of SET and how it might be implemented," said Art Kranzley, a MasterCard senior vice president.

Kranzley said implementations would use chip cards and show how SET could also support transactions using Secure Sockets Layer (SSL) security and fraud software.

SET has been dogged by its lack of economic incentives for merchants and the high cost of implementation since its release in May 1997. U.S. banks and merchants opt for easy-to-use SSL even though the technology lacked digital certification, which verifies the

identity of card users.

But officials said the dizzying growth of the Internet requires additional security protocols.

"There's a growing need for a global payment capability that provides integrity in the payment authentication of the parties on a global basis. SET provides that," said Steve Herz, senior vice president of e-commerce at Visa.

Developers have also made the protocol easier. For example, a smart-card extension allows for chip-based transactions, and standard profiles of implementation approaches will simplify installations of SET merchant software and financial gateways with prepackaged solutions.

But winning over banks and merchants will take time and effort, Kranzley said. ■

Bank One Launches E-Commerce Push

Offers electronic bill presentment service

BY THOMAS HOFFMAN

Bank One Corp., the nation's fourth-largest bank thanks to a string of acquisitions, last week unveiled the first in a planned series of e-commerce initiatives.

Columbus, Ohio-based Bank

One said it has launched a service with Electronic Data Systems Corp. to present bills electronically to corporate customers such as utilities and insurers. EDS is hosting Web sites for billing agencies, which are the bank's customers.

Bank One plans to be among the first major banks to cash in on electronic bill presentment services, which allow companies to bill corporate and consumer customers via the Web.

Ronald Mandel, an analyst at Sanford C. Bernstein & Co., a New York investment bank, said he expects Bank One to launch other Internet banking services beginning in July.

Those online services may include loan and investment products from its competitors, Mandel said.

Bank One already offers its customers the ability to pay bills and invest in stocks and mutual funds online through its OneSource service (www.bankone.com).

Bank One CEO John McCoy told attendees at a banking conference two weeks ago that the bank plans to tie its future growth to the Internet and not to more acquisitions. ■

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HEALTH DEPT. USES JAVA TO SPOT DISEASE FASTER

Leading-edge, server-side technology speeds access, enables detailed reports

BY CAROL SILVER

A new web application with leading-edge, server-side Java technology could help California's Department of Health Services spot outbreaks of infectious diseases several weeks earlier than before.

The state's Microbial Diseases Laboratory (MDL) in Berkeley last month adopted an intranet-based application that lets workers enter more-detailed geographic information and generate reports to analyze trends. Health officials no longer need to contact a Sacramento, Calif.-based Cobol programmer and possibly wait four weeks for data to be extracted from the mainframe.

When the application is extended to the Internet in the fall, county health laboratories will be able to give the MDL notice of incoming samples and enter tagging information to speed processing and prevent errors. The MDL can then post the results to the Web, giving remote labs far quicker access than with paper-based notification systems.

Innovative server-side Java technology and reused Cobol code helped the state health department provide end users with access to the data locked in its mainframe, project staffers said. The state spent \$400,000 on the project, and IBM provided \$138,000 in services, project director Byron Roberts said.

"There are a lot of companies that wish they were in this position now," said Tim Skone, an analyst at Boston-based Aberdeen Group Inc. He estimated that only 5% of companies have deployed such an application.

For the health department, the first, key step was having a programmer spend six months moving data from its old Software AG Adabas database to IBM's DB2 database for performance and scalability reasons.

Project staffers said other key decisions included:

- Using more than 30 Java servlets to convert data into HTML for presentation so the department can keep the client small and not have to worry about browser support for Java applets.
- Deploying an application server, IBM's WebSphere, in the middle tier for up-to-date Java support and the flexibility to make changes.
- Keeping the business logic and database on the host system to reduce the amount of data being moved and the number of data transfers over the network.

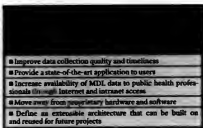
The server programs were

created by IBM's Visual Generator tool, which programmers already had experience using, Roberts said.

"What they have done is recognize the value of legacy data, server-side Java, an application server and a thin client — four of the hottest topics in application development. Putting it all

together in this way [deserves] kudos," said Daryl Plummer, an analyst at Stamford, Conn.-based Gartner Group Inc.

"It's not hard — it's just that most people don't think that way yet," he said. "Most are still struggling with [Common Gateway Interface] and Web scripts."



SCREENSHOT OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES

Trivnet Offers Payment Service Using ISP

Customers' billing routed via Net accounts

BY MATT HANDELMAN

Start-up Trivnet Inc. in Santa Clara, Calif., today will announce an Internet payment service that aggregates payments for small purchases on a customer's monthly Internet service provider bill.

The Trivnet service, called Wisp, will be rolled out in

North America starting June 1 to consumers through 50 Internet providers reaching 400,000 people. It will be available directly to large businesses some time in the third quarter, Trivnet officials said.

Merchants as well as Internet providers must sign up with Trivnet to offer the service. Then, when a customer reaches the site of a Trivnet-aligned merchant and finds software or a game to purchase, a payment form appears saying that the charge for the purchase will appear on the customer's provider bill if the Internet provider has a Trivnet alliance. Payments from a penny up can be charged this way, depending on the provider.

Analysts said there are other services that aggregate billing for "micropayments," some less than a \$1, none very successful. And, none allows a customer to make the payment through an Internet provider bill. For example, Qipix in Seattle offers an aggregation in

which charges appear on a customer's credit card, said analyst Clay Ryder at Zona Research Inc. in Redwood City, Calif.

"The question of whether Wisp catches on is whether Middle America wants to buy their next toaster on the Internet and get billed for it by their ISP," Ryder said. Ryder also questioned whether the spending authorities at large businesses would want to set up the Wisp system, "which would dance around a company's spending authorities."

Trivnet has already established the service in Israel with merchants and providers and has signed up as beta testers Internet Direct Ltd., a provider in Toronto, and Tucows.com Inc., also in Toronto, an Internet shareware vendor, officials for the three companies said.

At Tucows, the average purchase is \$35.47, and the site has about 8 million visitors per month, said Ross Ryder, director of e-commerce. "Wisp is the most logical system I've seen, with the consolidated system at the ISP," he said.

HP's Brokering App Will Link Web to Hubs

Automatic updates flow to linked sites

BY JAGDISHAN VIJAYAN

Hewlett-Packard Co. this week hopes to build on its electronic-services thrust with new brokering software called ESpeak.

Previously code-named Fremont, the software technology is primarily aimed at service providers. The technology will allow companies to convert Web sites into sophisticated information hubs that can communicate and exchange information between multiple applications and e-commerce sites.

For example, a travel services company can use ESpeak to link its Web site with multiple service providers like airlines, rental-car companies and hotels into a giant network. A customer logging on to the travel services site to change, say, a previously arranged flight, needs to make only that one change for it to be automatically reflected in all other travel arrangements.

"What [ESpeak] really does is facilitate the flow of information over the Web" in an intelligent fashion, said Joseph Ferlazzo, an analyst at Technology Business Research Inc. in Hampton, N.H. "It has the Net working for you, instead of you working the Net."

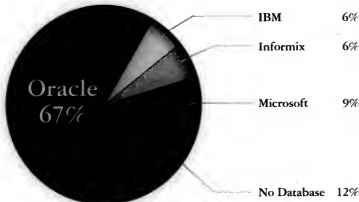
"Call it HP's version of Sun [Microsystems Inc.'s] Java [technology]," said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H. "It is the mechanism that HP will ride to promote its vision of the interconnected services world of the future."

HP's latest efforts should lend momentum to its unfolding electronic-services strategy. Since early this year, the company has been trying — mainly through partnerships and acquisitions — to offer users a full palette of Internet technologies and services.

HP declined to comment for the story.

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BRIEFS

Industry Group
Pushes Web Ratings

An industry group made up primarily of European companies that also includes Microsoft Corp. and IBM has formed an association to establish a global Internet content rating system for language, sex, violence and nudity. The voluntary self-rating system will use a mechanism already embedded in Web browsers.

Bank ATMs in Texas
Use Iris Scan

Bank United Corp. rolled out automated teller machines that can identify customers by scanning their eyes' irises. The ATMs, which the Houston-based bank developed with Dineflex Inc. and Sencor Inc., are being used at three Rogers supermarket locations in Houston, Dallas and Fort Worth, Texas.

An iris is the colored part of the eye — has 296 measurable characteristics, compared with a fingerprint's 35.

Sun Prepares
JavaBeans Spec

Sun Microsystems Inc. released a public draft of its Enterprise Java Beans 1.3 specification. The final version is due next month at the company's JavaOne conference.

Short Takes

HIKE SOFTWARE INC. is San Diego-based a service to help Web retailers new tools for detecting credit-card fraud based in Internet transactions. ... **TOSHIBA AMERICA INFORMATION SYSTEMS INC.** is certifying its entire line of Magna PC servers as compatible with Red Hat Software Inc.'s version of the Linux operating system. ... **INTERPATH COMMUNICATIONS INC.** will add SAP AG software to its application-based offerings via SUN MICROSYSTEMS' Service-Provider.com program. ... **DELL COMPUTER CORP.** and **MACRON ELECTRONICS INC.** have settled with the U.S. Federal Trade Commission over allegations that computer buyers' advertisements didn't adequately display cost information.

COMPAQ TRIMS DISTRIBUTORS,
BUT WILL LOSE SERVICES CHIEF

Rando resignation raises concerns about key services unit; company unfazed

BY MATT HANSEN

COMPAQ COMPUTER Corp. danced the Texas two-step last week, jumping forward by slicing its distributors and stumbling back with the resignation of its computer services chief.

John Rando, 47, head of Compaq Services, will resign effective July 1. He came to Houston-based Compaq last June following its acquisition of Digital Equipment Corp. and will leave behind a \$7 billion unit with 27,000 workers in 14 countries. Compaq officials said.

Analysts have regarded the unit as one shining hope for growth at the new Compaq. Rando's unit has a higher gross profit margin than other divisions, analysts said.

But at the same time Compaq achieved a 9% increase in revenue in the first quarter to reach \$16 billion, it shocked analysts with a meager earnings performance [CW, April 19].

Rando won't be easy to replace, partly because he was such an institution, having risen through the ranks at Digital over 23 years.

"Services was the big gem of Digital and Compaq, and [Rando's] leaving is startling and discouraging," said Jonathan Eunice, an analyst at Illuminista Inc. in Nashua, N.H.

"It doesn't auger well for Compaq," he said, adding that the services unit was 85% of the reason that Compaq purchased Digital.

Compaq officials said that

Compaq will have to make sure the four [distributors] can handle the increased volume.

JIM DORSETT,

MANAGER OF CLIENT SUPPORT,
COULTER CORP.

Rando's departure was his own decision and that the unit will continue as strong as ever. A successor hasn't been named. Rando couldn't be reached for comment.

Analysts said Rando's reasons for leaving might be mostly personal, because he recently built a home in New England that he seldom visits. But it might also be because Compaq is showing an unwillingness to invest in the services unit, they said.

In interviews, four users declined to comment on Rando's departure. But they cheered Compaq's announcement that it will cut the number of its distributors in North America from 39 to four: Ingram Micro Inc., Tech Data Corp., Merisel Inc. and Inacom Corp.

Fewer distributors will cut transportation costs and speed final computer assembly — and that will put the newest products in the hands of users sooner, analysts said. The result should be significant cost savings to business customers buying desktops and laptops, analysts and users said.

"We were anticipating the distribution announcement because there were too damn many out there," said Jim Dorsett, manager of client support at Coulter Corp., a Miami health care systems provider with nearly 1,000 Compaq laptops. "It's good for us because it might lead to lower costs, but Compaq will have to make sure the four [distributors] can handle the increased volume."

IBM Generates E-Biz Thrust

Gerstner says 25% of revenue Web-related

BY JANUARIAN VILJAN

IBM has been among the nimblest of enterprise-level hardware vendors in exploiting electronic-business opportunities.

Already, 25% of the company's revenue — or about \$20 billion — comes from electronic-business-related sales. Chairman and CEO Louis Gerstner said at an analyst's briefing last week.

The company has so far completed \$10,000 electronic-business-related projects, with 8,000 more in the pipeline. It hopes to generate a cool \$3 billion in related services this year — up 40% from last year.

In comparison, the top 25 pure-play Internet companies — including Amazon.com Inc.

and America Online Inc. — last year generated a combined \$5 billion in revenue while losing more than \$1 billion. Gerstner said.

Much of IBM's momentum is coming from the service opportunities presented by companies that are redesigning their entire business processes and information technology infrastructures because of the Web, Gerstner said.

"For the most part, the Internet is a business challenge, not a technology challenge," he said.

"[What companies are] beginning to understand is that to fully exploit the networked world they have to make fundamental changes" in how they deal with distributors, suppliers and customers, he said. ■



LOUIS GERSTNER says fundamental changes are required

EDI Vendor Courts the Web

Includes XML features in product launch

BY CAROL NIXON

EDI vendor Sterling Commerce Inc. last week expanded its Web-based business-to-business offerings, including an upgrade of its anchor Gentran family to handle Extensible Markup Language (XML).

By June 30, the Dublin, Ohio, company's Gentran message management server software will be able to receive and translate messages in the traditional electronic data interchange (EDI) format or XML's many flavors for integration with customers' back-end systems, officials said.

Fastenal Co., an industrial supplies distributor based in Winona, Minn., has pilot-tested Gentran's XML capabilities because one of its electronic trading partners, Datasream Systems Inc. in Greenville,

S.C., performs XML transactions.

Gentran is helpful as the gateway to funnel all Fastenal transactions — whether via traditional EDI or its Web site — into its PeopleSoft Inc. enterprise resource planning system, said Bryce Barnes, an EDI coordinator at Fastenal.

With its new product capabilities and service offerings, "what Sterling is really trying to do is position themselves as a one-stop shop for electronic commerce," said Chris Solland, an analyst at The Yankee Group in Boston.

Sterling plans to bundle Cambridge, Mass.-based Oberon Software Inc.'s Prospero with a new e-commerce broker, expected in late summer, to perform enterprise application integration. ■

Privacy Poll Won't End Push for Legislation

BY PATRICK THIBODEAU
WASHINGTON

The number of commercial Web sites with posted privacy policies has increased considerably in the past year, according to a new survey. Although the results were heralded by industry groups as proof that self-regulation is effective, privacy advocates said federal regulations are still needed.

The Georgetown University Internet Privacy Policy Survey, released last week, found that 66% of the 364 Web sites it surveyed had a posted privacy policy. A U.S. Federal Trade Commission (FTC) study done one year ago reported only 18% of the 674 Web sites surveyed had policies. Mary Culnan, the Georgetown business professor who headed the new survey, said it was based on a study of Web sites that had at least 32,000 unique visitors per month, unlike the earlier FTC study that sampled commercial Web sites at random.

But the Georgetown study also looked at whether the sites addressed the "fair information practices" such as giving users a choice about whether they want data collected and the means to change that data. It found that only about 12% addressed all practices.

"No one can look at the numbers and not say that we have a long way to go," said Jerry Beriman, the executive director of the Center for Democracy and Technology in Washington.

Industry advocates disagree. "Is there more to go? Definitely," said Tophier Neumann, Ernst & Young LLP's director of the Center for Trust Online. "But have we made a lot of

progress in the last year? Yes."

FTC Chairman Robert Pitofsky said online firms deserve "considerable credit" for their

progress but added that the commission will look "beyond these raw numbers" and send a report to Congress. The survey

won't curtail congressional advocates. Edward J. Markey (D-Mass.) intends to introduce privacy legislation in two weeks. "We still think that you're going to need a law to back up the regulatory efforts,"

said David H. Moulton, a spokesman for Markey.

Markey isn't alone. There are several other privacy-related bills in Congress. U.S. Sen. Orrin Hatch (R-Utah) said legislation "appears inevitable."



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92% Collect at least one type of personal identifying information, such as name or e-mail address

57% Collect demographic information, such as gender, preferences or ZIP code

66% Posted privacy policies

FileNet's Panagon 2000 Adds Web Delivery

BY DOMINIQUE BERNARD

Users last week said they are anxious to get their hands on Panagon 2000, an update of

FileNet Corp.'s document management environment slated to debut today.

The release features greatly

increased support for the Web and provides links to Lotus Notes and Microsoft Outlook. It's expected to ship to a limited

number of customers in June, with general availability in the fall. Typical pricing for a 200-user configuration will be about \$570 per user.

Wellman Inc., a manufacturer of polyester, has been stor-

ing all documents pertaining to the design and construction of its plant in Bay St. Louis, Miss., in the previous version of Panagon, which was launched last year. But the company has been waiting for Panagon 2000 to move all its training materials into the system, said Ron Scott, systems superintendent.

"We wanted to move away from fat clients, to share documents over the Web," Scott said. "We've been waiting to deploy our training materials [on Panagon] until we have the Web delivery [features]."

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We wanted to move away from fat clients, to share documents over the Web.

RON SCOTT, SYSTEMS SUPERINTENDENT, WELLMAN INC.

Financial giant BankAmerica Corp. in Charlotte, N.C., recently went live with a Web application based on FileNet Panagon, and 300 to 400 workers are now using it. But the bank is looking forward to the new features in Panagon 2000, particularly the Lotus Notes integration, which will let users send documents and images stored in the Panagon system to one another.

"We're trying to make sure we'll be the first customer they ship to," said Gary Neuman, vice president and senior systems engineer at BankAmerica. He said the integration with Notes is something he has been requesting from FileNet "for three years."

FileNet has been struggling to integrate products from a number of mergers, including the 1996 acquisition of Saros Corp. Panagon 2000 represents an important milestone in this respect. "The previous version [of Panagon] had a common front end to the technologies they had acquired," said Andrew Warzecha, an analyst at Meta Group Inc. "What they've done now is to integrate the back end." ■

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BRIEFS

Microsoft, Compaq
Offer Joint Training

Microsoft Corp. is trying to prepare its corporate customers for the long-anticipated Windows 2000 operating system by working with Compaq Computer Corp. to offer a joint information-technology-focused training initiative.

For \$4,000, users will get a server that is loaded with applications and streaming media. The server will use the customer's own network to access taped seminars and conferences.

Start-up Offers
Storage Rental

Storage Networks Inc., a Watertown, Mass.-based start-up, will soon offer storage capacity for rent.

Primary services offerings from the company will include continuous data access and recovery in case of disasters or system failures, backup and restoration of archived and electronic mailing, and live data replication via a high-speed dedicated Fibre Channel network.

CorelDraw Users Told
To Watch for Virus

Ottawa-based Corel Corp. last week reminded users that the scripting language included in CorelDraw can carry viruses.

It issued the notice after Central Command Inc. in Medina, Ohio, and Resecurity Lab in Moscow last week found a minor Corel script virus that executes on any June 6.

Short Takes

After surviving accusations that he embellished his academic and military careers, the president of IBM's Cambridge, Mass.-based LOTUS DEVELOPMENT CORP. division, Jeff Pfeffer, quits under fire last week as a former executive named him in a sexual harassment suit. . . . Kmart Corp. in Troy Mich., has appointed Paul W. Sasser to head the retailer's e-commerce efforts. . . . A New Jersey company is seeking class-action status to sue AT&T CORP. for signing up more cellular phone customers than it could accommodate.

MORE USERS ARE
LOOKING AT LINUX

Interest still low, but tire kicking jumps 72%
in three months, says Computerworld survey

BY DAVID ORENSTEIN

ALTHOUGH most information technology managers remain aloof to Linux, the free, Unix-like operating system is rapidly gaining enough credibility to merit a look from users at major companies, according to a Computerworld tracking survey.

Since February, the number that report either using or at least considering Linux has grown by 72% (see chart).

Analysts, who have also noted rapidly rising interest, said companies are taking notice of announcements from major vendors like IBM and Hewlett-Packard Co. that agreed to support the operating system.

That rapidly building support infrastructure is earning Linux a second look at Minneapolis-based Polaris Industries Inc., a \$1.1 billion maker of small vehicles. The company

looked at Linux as an intranet server a year and a half ago but rejected it after realizing that the desired applications won't run on the platform, said Phillip Krahn, manager of IT assessment.

The company still has no plans to adopt Linux, Krahn said, but "I guess if support continues to build like it has with more applications, I could see it being used for special applications like a Web server."

Several companies will make Linux-related announcements next week, in part because the fifth annual Linux Expo will take place, in Raleigh, N.C. The announcements are to include the following:

- BEA Systems Inc. in San Jose will release Linux versions of its WebLogic application server and its Tuxedo transaction monitor. The tools will help fill the void of middleware available for Linux, said Dan Katsenky, an analyst at International Data Corp. in Framingham, Mass.
- Silicon Graphics Inc. in Mountain View, Calif., will announce its wide embrace of Linux and open source code.

But among the three quarters of IT managers who are neither using nor considering Linux, the operating system still faces substantial hurdles.

More than 80% of those managers said they aren't looking at Linux because they adopted a different operating system.

For example, San Francisco-based construction giant Bechtel Corp., which has about 1,000 Windows NT servers, is unlikely to adopt Linux, said software development manager Kevin Cornish. Some of the servers — especially those overseas — are tended by users who don't have the skills to manage Linux. Adding another operating system to the mix could make administration too complex, he said. ■

Tensions Slow Component Compatibility

EJB/CORBA union sought by weary users

BY DAVID ORENSTEIN
SAN FRANCISCO

All users are saying is give interoperability a chance. At the Software Development West conference here last week, the standard-bearers of Enterprise JavaBeans (EJB) and the Common Object Request Broker Architecture (CORBA) both reiterated their pledge to cooperate — but also openly needed each other.

Users said they need the two component models to interoperate, but they are skeptical that true compatibility will happen soon.

The CORBA standards organization, the Object Management Group (OMG), has delayed final comments on the CORBA Component Model until August to accommodate upcoming developments in the EJB specification. A new version of EJB is expected to be announced next month at the JavaOne conference here.

But the desire of OMG and Java creator Sun Microsystems Inc. to cooperate is hindered by their rivalry. Neither group wants the competing model to become the dominant one. At a conference session, CORBA vendors described EJB as sketchy, while Sun's representa-

tative retorted that users can build applications with EJB while CORBA's component model is still being developed.

Users are caught in the middle. T. Rowe Price Investment Services Inc. in Baltimore wants to adopt an application architecture based on Java and CORBA, said Dion Hinchcliffe, manager of technology development. The company finds EJBs are relatively easy to work with. But with a current architecture based on C++, the company needs the multilingual support of CORBA. "It's essential," Hinchcliffe said. "We can't go to EJB without it."

Hinchcliffe said he doesn't expect Sun to provide interoperability. Instead, he said, that may come from application server vendors that have in-

cluded support for Java and CORBA. Still, Hinchcliffe said he will attend JavaOne to find out more about Sun's plans.

Java's ease of use has revived interest in the CORBA standard, which had been regarded by many users as too difficult to use, said Larry Perlstein, an analyst at Dataquest in San Jose. Although Java is driving interest, he said, one vendor or technology shouldn't dominate distributed component development. But vendors won't provide compatibility unless users push them, he said.

At Pacific Bell's directory unit here, developers must use CORBA to integrate third-party applications that aren't written in Java into the company's infrastructure, said system architect Bob Wargowski. Interoperability between EJB and CORBA is important, he said, but "I'm not 100% confident that will happen." ■



Component Cohesion

Enterprise JavaBeans and the Common Object Request Broker Architecture's component model have several differences that make them incompatible at the moment. Here are a few:

CORBA design is based on Interface Definition Language, while EJB is based on Java.

Handling rules for components are different even for simple issues like case sensitivity.

Object types systems are similar but not the same. Java includes additional aspects such as values.

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Novell Attempts to Regain Branch-Office Customers

New tools manage Windows NT systems

BY SHARON BAUDIN

Novell Inc. is going after a piece of Microsoft Corp.'s operating system pie in the branch-office market.

Microsoft has entrenched its Windows NT operating system in the market for branch-office or departmental servers, taking some of that business away from Novell. Now, Novell is trying to win it back.

At the annual Network/Intercept '99 show in Las Vegas last week, Novell released BranchManager for NT, a package of existing applications upgraded to manage the NT platform using Novell Directory Services (NDS). The package includes desktop and

server management and year 2000 compliance checks.

Novell had earlier released NDS for NT, but this is the company's first release of NT-focused management tools.

"We're in a technological turn toward using more Windows NT and Microsoft Office, but we'll use Novell connectivity," said Russ Schadt, a network specialist at Lisle, Ill.-based Wallace Computer Services Inc., an information management product and commercial printing company. "NDS has been around for many moons, and Microsoft's directory is new. Why would I change and go with that?"

Microsoft's NT 4.0 uses a

registry to serve as a directory, but its upcoming upgrade, Windows 2000, will use Active Directory, the company's domain-focused rival to NDS.

"Branch offices have traditionally been at the low end of the priority scale for help desks," said Laura DiDio, an analyst at Giga Information Group Inc. in Boston.

"There are a lot of NT servers in branch offices ... and managing all those branches with [an NT-style] domain directory is going to be difficult. With NDS, you could easily view the entire network and configuration," she said.

BranchManager will include ZooWorks for NT, a desktop management tool that will work with Windows 95, 98 and Windows NT 4.0 Workstation. ZooWorks can also check the year 2000 status of desktop systems. BranchManager will also include ManageWise for Windows NT, a server-based management tool. ■

Continued from page 1

Chevron/Texaco Merger

Southeast Asia and the Caspian and North seas — their wide-area network installations in those areas are probably redundant, industry analysts said.

AT&T officials wouldn't comment on the proposed merger or the size of its Chevron and Texaco contracts.

The Chevron/Texaco merger talks come on the heels of an announcement last month from BP Amoco PLC that it plans to purchase Atlantic Richfield Co. Exxon Corp. and Mobil Corp. are also set to complete a merger [CW, Dec. 7 and April 5].

"IT spending can easily be 3% to 5% of revenue [for energy companies], and management will be looking to see where they can take some cost out," said one oil industry ex-

pert at Electronic Data Systems Corp., who asked that his name not be used. Chevron is a client of EDS.

Global networks are just one area where oil companies are looking to cut costs as oil prices flounder.

Industry observers said Chevron and Texaco share similar systems for the import and export of natural gas and crude oil. But those may be spared because the systems are tied directly to revenue production.

Integration could also take place in back-office systems. San Francisco-based Chevron uses SAP AG's R/3 for finance, and Texaco, based in White Plains, N.Y., uses an in-house mainframe system, company officials said.

Outsourcing Option

Outsourcing remains an option for all Chevron IT services, according to Bob Eckhoff, manager of strategic alliances at Chevron Information Technology Co., the company's IT arm in San Ramon, Calif. Last June, Chevron outsourced its mainframe, voice and data network services and IT support to EDS in a five-year, \$400 million deal. About 260 Chevron staff moved to EDS and contract partner GTE Corp. as a result.

Texaco outsourced its desktop operations to Hewlett-Packard Co. two years ago and manages most other systems in-house.

Texaco officials said they will continue to work on an overhaul of Texaco's IT infrastructure that began last year. The plan to provide networked applications to its 21,000 employees in 150 countries is scheduled to be completed by the end of next year.

"We've negotiated with a number of companies before [in merger talks], but nothing happened," said Beverly Childs, Texaco's director of infrastructure. "We're moving ahead until we hear otherwise." ■

MORE ONLINE

For research related to mergers in IT, visit our Web site.
www.computerworld.com/news

FAAS SYSTEM REVAMP STILL ON THE GROUND

Y2K fixes on hook, but improvements to air-traffic control systems late

BY PATRICK THIBODEAU

WASHINGTON

LAST WEEK, FEDERAL Aviation Administration Chief Jane Garvey booked a New Year's Eve flight to illustrate her confidence in the agency's Y2K fix.

But Garvey's action was probably cold comfort to travelers who experienced delays as a result of two recent computer glitches in air-traffic control systems in the New York and Chicago areas.

Although the year 2000 problem will force the FAA to complete remediation work by year's end (the work is 90% completed and should be done by June 30), there's no finish line in sight for another key FAA project: deployment of new air-traffic control systems at 173 terminal radar facilities.

The Standard Terminal Automation Replacement System (STARS) is a complete replace-

ment of the 15- to 25-year-old air-traffic control hardware and software systems. It was designed to improve system automation and speed, reduce redundancy and give controllers more information.

Boston's Logan International Airport, because of its proximity to Raytheon Co. in Lexington, Mass., was to have been the first site to migrate to the STARS system last year. Instead, early next year, the FAA will roll out the systems at several smaller commercial airports "to make the introduction easier," said FAA spokesman William Shumham.

Extensive design changes have slowed the project, which was launched in 1996 and scheduled to be completed in 2005. The FAA won't know the final schedule or cost, which was originally set at \$1 billion, until summer's end, an FAA spokesman said. The FAA is moving more quickly to re-

place 1987-vintage IBM host computers used at its 20 regional air-traffic control centers. Those systems, especially the one in the Boston Air Route Traffic Control Center in Nashua, N.H., were prone to crashing, controllers said. The hardware replacement project was begun in February at the New York Air Route Traffic Control Center in Ronkonkoma. But that system crashed May 6.

During the New York test, officials had put the system in "dual mode" — testing a new radar display workstation while running the old one. A software glitch caused the system that was supplying data to both display terminals to crash, leaving controllers to guide traffic with only limited information, said Barry Bushnack, the FAA's airways facility division manager. The problem caused significant delays.

A day earlier, a problem at terminal control center in the Chicago area also caused a control systems failure. Kurt Grainger, who heads the Chicago-area chapter of the National

JUST THE FACTS

Air-Traffic Controllers

■ The U.S. General Accounting Office estimates that the FAA will spend \$28.5 billion on air-traffic modernization programs from 1992 to 2004. Of that amount, \$12.9 billion is for 50 IT projects.

■ The major project is the Standard Terminal Automation Replacement System (STARS). Began in 1996 at an estimated cost of \$2.7 billion, it will replace 15- to 25-year-old equipment and improve automation at 173 traffic-control facilities.

Air Traffic Controllers Association, said the crash was triggered by a software upgrade.

The Airline Pilots Association in Washington wasn't alarmed. "Stuff happens ... [with] a system as big and as complicated as traffic," said spokesman John Mazur. He also said the association wasn't too worried about the delays in the terminal replacement program. The current system "has proven to be fairly reliable." ■

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LABOR GROUPS SEEK UNIONS FOR N.Y. CODERS

Left out of IPO frenzy, some Silicon Alley developers look to boost working conditions

BY THOMAS HOFFMAN

LONG HOURS. Spotty benefits. Disgruntled workers who feel exploited. Sound like a scene from a 1950s plant floor? Try New York's Silicon Alley today.

As founders of Internet start-ups cash in on the initial public offering (IPO) frenzy and become paper millionaires, many of the thousands of rank-and-file developers and graphic artists who built the foundation of that success are being left behind. Not only are they not collecting stock options, but many also lack even basic health care benefits.

Sweeping in with a shoulder to cry on are established unions like the Communications Workers of America (CWA), which are actively organizing technologies to help them get fair pay and improved working conditions.

But to date, the unionization drive has been fragmented, and it faces several obstacles.



NETSLAVES CO-FOUNDERS Steve Goldstein (left) and Bill Lessard don't see improvements ahead until Wall Street's hot-stock bubble bursts

Those include the need to overhaul decades-old union models to meet the work-style needs of Internet employees, not to mention the challenge of organizing thousands of transient cybernauts.

Employers aren't exactly embracing the notion. For example, one consultancy, LFI

Pyramid Consulting, was recently accused by New York's biggest municipal workers' union of firing six technical workers because they were vocal supporters of a union drive earlier this month.

Labor advocates and critics agree that Eisenhower-era labor union models, which set

rigid work hours and rules for overtime pay, would have to be overhauled to meet the needs of Java and Extensible Markup Language developers. That's because those workers thrive on perks like flextime and telecommuting.

Eric Goldberg, president and founder of games developer Crossover Technologies Inc. and a board member of the New York New Media Association, said classic "New York-style" unions won't work in the Internet economy. "As long as someone is able to build an Internet start-up and monetize it in 12 to 18 months, the employee backlash won't catch up to them," he said.

Efforts to unionize information technology employees aren't restricted to New York. A group of Microsoft Corp. temporary workers who work full-time hours but don't receive full-time benefits formed a local union for the CWA in Seattle in October called the Washington Alliance of Tech-

nology Workers (www.watshk.org), said Eric Geist, a director at The Newspaper Guild, a Washington-based sector of the CWA. The CWA also unionized a group of HTML developers at the online division of the Pueblo Chieflain newspaper in Colorado.

But Geist acknowledged that it's difficult to organize Web developers and other contract technologists who are transient by nature.

Another roadblock to unionization: Many freelance cybernauts are finding no shortage of work, commanding \$100 per hour or more, so they haven't felt a strong urge to organize.

"I don't think there'll be a formation of [an IT] union until the bubble bursts — [when] the Dow Jones Industrial Average drops, and IPOs sink," said Bill Lessard, a seven-year denizen of Silicon Alley. In December, he co-founded a Web site for disgruntled technologists called NetSlaves (www.netslaves.com).

"Your typical MIS organization is just ripe to be unionized, especially software organizations that rely on bureaucracy instead of creativity," said John Miano, chairman of The Programmers' Guild, a Summit, N.J.-based group that has mushroomed to 300 members since its inception six months ago. ■

Nasdaq Targets Growth With Win NT Systems

Servers to support billion-trade volumes with apps that monitor market activities

BY STACY COLLETT

Nasdaq will try to stay ahead of dizzying stock-market growth by installing a faster, Windows NT Server-based system for its real-time surveillance and troubleshooting application.

The Nasdaq Stock Market Inc. will phase in the Unisys Corp. hardware starting this year and run the new system in parallel with legacy systems until completion late next year. It's a \$2.1 million investment.

The new equipment will support trading volume of 4 billion shares per day, which Nasdaq expects will occur by mid-2000.

"Last year, we had a few bil-

lion-share days. By January of this year, all but one were billion-share days," said Gregor S. Ballar, CEO at the National Association of Securities Dealers Inc. (NASD), the parent company in New York.

Pentium III Power

After completing months of testing, Nasdaq is replacing its Tandem Computers Inc. and Sun Microsystems Inc. systems with 22 Unisys Aquanta ES5000 four-way servers. The Unisys servers feature Pentium III Xeon processors and run Windows NT Server.

The system will also use Microsoft SQL Server 7.0 and other

Microsoft Corp. software.

Ballar said the new system will process trades slightly faster than the legacy system, which has undergone numerous performance upgrades. But the real advantage will be a reduction in the number of trouble-shooting "events" that are triggered.

In Wall Street parlance, an event is a disruption in trading patterns. If a trader is buying Microsoft stock at \$10 per share instead of \$100 per share, for example, systems analysts are alerted and an investigation begins. Nasdaq registers tens of thousands of these events per year, but many of them are triggered because the

legacy system can handle only a small amount of trading pattern information.

With the new server technology, the application will be able to learn and evaluate larger and more complex trading patterns, which will reduce the

on the new system.

But with the stock market growing at breakneck speed, how long will the new servers last?

"No matter what you're doing with customers online, you'll never get enough performance, bandwidth and capacity," said Bob Tisket, an analyst at market research firm The Yankee Group in Boston.

More Processors

"Unisys' Clearpath architecture has such scalability that you can throw in processors [to handle more volume]," he said.

But Nasdaq is also looking at ways of bringing Windows NT-based enterprise server technology to the American Stock Exchange, which it acquired late last year. ■



NASDAQ CEO GREGOR S. BALLAR: "Billion-share days" necessitated the investment in new equipment

number of false alarms and increase the quality of those events that are flagged. Analysts will be alerted to events within 200 to 700 milliseconds

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NEW COVENANTS' EASE ONLINE CHANNEL WAR

Retailers, manufacturers find ways
to co-exist on electronic frontier

BY JULIA KIMO

SHOPPING ONLINE for Levi's? Forget clicking on Macy's, which like all other retailers has been shut out from selling the blue jeans and other Levi clothing on the Internet. The reason: Levi Strauss & Co. wants the cyber-market all to itself.

Essee Lauder Cos., on the other hand, is willing to let you buy its Clinique cosmetics counter at Macy's virtual cosmetics counter or at its own Web site. Either way, the \$4 billion cosmetics giant gains brand awareness, which sells more mascara.

Plus, as some experts see it, it really has no choice.

"Any company that thinks it can dictate where a customer finds and buys goods online will end up with declining market share," said Ken Orton, chief strategist at Cognitavite Inc., an e-commerce marketing consultancy in San Francisco.

That thinking is catching on with a growing number of manufacturers and retailers that are beginning to retreat from the channel conflict that flared up in the early days of e-commerce. Instead, they're gingerly negotiating coexistence strategies — the first signs of an emergent, yet surely temporary, online détente.

"What we're seeing is a growing recognition that [e-commerce] is not an either/or proposition," said Scott Young, vice president at Vicinity Corp., an electronic retailing consultancy in Palo Alto, Calif.

"The question for manufacturers becomes how to maintain channels without cannibalizing them."

No Discounts Online

Some manufacturers are appeasing retailers by limiting their own online offerings to items not sold in stores or not letting the Web sites offer the discounts available in stores.

Others, such as the Lexus division of Toyota Motor Corp., provide product information only, then point online shoppers to retail outlets to buy — but only after the manufacturer has collected valuable consumer data.

Manufacturer Estee Lauder sells Clinique products directly to customers online. But it doesn't offer the kind of promotions retailers such as Macy's run several times a year, such as the popular Clinique Bonus program that provides several free products with a purchase greater than \$15.

"The Clinique Bonus must remain a perk for those people who bother to go to the store, because it's a huge traffic driver," said Angela Kapp, vice president of special markets and new media at the \$4 billion cosmetics company.

Waterford Wedgwood PLC, the Irish crystal manufacturer, also sells directly from its Web site. But the company limits its offerings to special products such as crystal chandeliers and corporate gifts, which its retail dealers don't carry. The site also features a dealer locator button that points shoppers to nearby stores.

Nike Inc., the Beaverton, Ore., maker of sneakers and other athletic gear, goes one step further. Its Web site features a button to buy online at full retail price plus shipping and handling charges. By contrast, the retail stores Nike lists on its site are allowed to dis-

count, giving them a leg up on pricing. The stores receive the lion's share of Nike's \$9.8 billion in annual revenue.

"We make most of our revenue on volume, so it's not in our interest to cut off traditional channels or interrupt traditional retail business," said Vada Manager, a Nike spokesperson. Most Web visitors, by contrast, are purely window shoppers.

Make no mistake: The Web is critical to Nike and other manufacturers looking beyond the current déteña phase. It offers them a relatively inexpensive way to establish a direct relationship with their customers — something most manufacturers have never had before because they always sold through retailers.

But for the moment, it's more important to keep peace with traditional channels because that's still where the big money is.

Brick-and-Mortar Stores Still Strong

Last year, brick-and-mortar stores rang up 93% of U.S. retail sales revenue. E-commerce, by contrast, accounted for about 1%, and catalog sales the other 6%.

Estee Lauder sales at department stores and specialty shops still account for 48% of the company's total sales. By contrast, only about 2% of online shoppers actually buy Clinique products online. The other 98% either go to a store or don't buy at all. "So I don't like to view this as a head-

to-head competition," Kapp said.

"It's going to be a really long time before we can convince me we're going to be doing \$4 billion in lipstick online," Kapp said.

Yet without a doubt, online is where the fastest growth is taking place. Last year, Internet sales tripled to \$9 billion, according to the U.S. Department of Commerce.

Customer Data Crucial

So manufacturers can't be expected to stay on the sidelines for long, which is why getting their hands on consumer data and establishing direct relationships is so important now.

OfficeDepot.com, for example, cut a deal with Hewlett-Packard Co. under which it could sell HP's Series 2000 printers exclusively for a short period of time. In exchange, OfficeDepot.com provided key marketing and customer data back to the Palo Alto, Calif.-based manufacturer.



ESTEE LAUDER'S ANGELA KAPP says bonus gifts are one way to keep foot traffic heavy at its stores

Greg Goodwin, owner of Kuni Lexus in Littleton, Colo., is one retailer who foresees his suppliers — car manufacturers — eventually moving to direct online sales of the same product he sells. But until that threat becomes real, he's taking advantage of the marketing edge his Lexus-subsidized Web site gives him in the market today.

Goodwin is a member of the automaker's Internet dealers' committee, which dictates much of the content of its dealers' Web sites via a "marketing covenant" dealers sign. In exchange, Goodwin's dealership pays only about \$5,000 per year for information about new models and ongoing training, technical support and other services Lexus provides.

Under the marketing covenant, customers who wish to send e-mail must go through dealerships because the manufacturer's site doesn't support it, Goodwin said. Also, the Lexus corporate Web site posts new business to his dealership via its online dealer locator.

All told, Goodwin estimates that Internet-generated leads account for 10% to 15% of new car sales and 10% of used car sales.

Overall, about 25% of new car buyers use the Internet at some point during their shopping experience — mostly for research, according to John Holt of Seattle-based Cobalt Group, which builds and maintains Web sites for top auto manufacturers.

Of the shoppers who use manufacturers' sites, 72% are still showing up at dealerships to smell the leather and take a test-drive," Holt said. The bottom line: "Not too many people make a \$40,000 buy over the Internet."

At least for now. ■

Different Channel Approaches

LEVI STRAUSS sells jeans at www.levi.com but won't allow retailers to sell jeans online

Office Depot

ESTEE LAUDER sells Clinique cosmetics at www.clinique.com but doesn't offer retail promotions

The Virtual Collection

Repertoire Artistic Products

www.repertoire.com

www.repertoire.com with a limited selection at www.repertoire.com the chandeliers, corporate gifts



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— Andre Kvitka, *InfoWorld*, 8/10/98

”

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Microsoft's Office 2000 is more like a platform than a suite of productivity applications. Organizations can choose to integrate third-party applications or customize the platform to suit their own applications and environments. Building on the Office 2000 platform can dramatically improve the overall desktop application management problem for IT.

— Amy D. Wohl, *Wohl Associates, Inc.*, 3/19/99

”

“

The next generation of Microsoft's desktop productivity suite goes beyond the desktop, linking workgroups together with Web-based technology—potentially making teamware and low-end groupware products obsolete.

— Steve Gilmor and Jeff Angus,
Information Week, 8/10/98

”

“

Office 2000 exhibits tighter integration with the Internet, better collaboration tools, and easier installation and migration features than any other office application suite *PC Week Labs* has tested... IT managers will find a lot to like in Microsoft's next release of its office application suite, including the great strides made in features that handle deployment.

— Herb Bethoney, *PC Week Labs*, 8/10/98

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BRIEFS

USA Networks, Lycos Cancel Merger

Lycos Inc., USA Networks Inc. and Ticketmaster Online-CitySearch Inc. called off their merger agreement, first announced Feb. 9, after Lycos stockholders expressed disapproval. USA and Ticketmaster agreed not to buy Lycos stock but said they would still offer content on Lycos Web sites and that the companies will promote one another. Lycos said it would have to pay \$30 million if it enters merger talks with other companies before July 15.

Cisco Profits Up 33%

Cisco Systems Inc. reported \$646 million in net income on \$3.35 billion in sales. Profits were up 33% and sales were up 44% from the same quarter last year. Earnings reflected a \$410 million write-off for in-process research and development. San Jose-based Cisco, which has 18,300 employees, said it plans to hire another 1,700 workers in the next three months.

The company also continued its investment program, buying a 53% stake in Portal Software Inc., a Cupertino, Calif., maker of Internet management and billing software.

Jury Selection in Bristol/Microsoft Suit

Jury selection is set for this week in Bridgewater, Conn., for the Bristol Technology Inc.'s antitrust suit against Microsoft Corp. The trial is slated to start June 1. Bristol filed the suit last August, alleging anti-competitive conduct after the two companies failed to agree on a contract renewal for Windows RT code. Bristol makes cross-platform development tools.

Short Takes

MOTOROLA INC. said it would sell its semiconductor components unit to private investment company TEXAS PACIFIC GROUP in a deal valued at \$1.6 billion. . . . **Dish drive maker QUANTUM CORP.** said it would acquire MERIDIAN DATA INC., a Scotts Valley, Calif.-based maker of network-attached storage appliances in an \$85 million stock swap deal.

MICROSOFT RENEWS BID FOR CONSUMER MARKET

Recent Nextel, AT&T investments are helping to pave the way for Windows penetration in non-PC consumer device market

BY KIM S. NASH

MICROSOFT Corp.'s \$600 million investment last week in wireless vendor Nextel Communications Inc. is the latest in a series of moves designed to seed the growing communications device market with Windows technology.

Microsoft is looking to ensure a leadership spot in the market for non-PC devices aimed mainly at consumers. Two weeks ago, the company laid down a \$3 billion insurance chip by investing in AT&T Corp., winning access to up to 10 million customers of AT&T's television set-top boxes [CW, May 10].

Cash to Key

Other computer companies are keenly interested in capturing consumers as well. They include Sun Microsystems Inc. and Oracle Corp., each of which has pushed ideas for non-Windows products such as network computers, handheld devices and set-top boxes. But unlike Microsoft, they don't have \$22 billion in cash to buy their way in.

And spend Microsoft has. In the past year, the company has invested in or acquired 23 online, telecommunications and networking companies (see chart).

Package Facts

In return, Microsoft usually secures a commitment from such companies to use its software in set-top boxes or other machines they plan to ship to consumers.

Or the companies have agreed to use and promote Microsoft's Internet ventures, as was the case with Reston, Va.-based Nextel, in which Microsoft now owns a 4.25% stake.

In the AT&T deal, for example, the telecommunications giant will use Windows CE in up to 10 million set-top boxes and deploy other Microsoft software in other consumer applications.

Microsoft also got a 30% stake in a British cable company as part of the agreement with AT&T.

The \$3 billion investment is a good deal for AT&T, "but Microsoft wins the hand" by finding new markets for Windows technology, said Gerry Kauf-

hold, an analyst at Cabners In-Stat Group, a market research firm in Newton, Mass.

The information technology implications of the consumer device phenomenon are unclear. Corporate use of such machines is expected to lag far behind home use.

But one thing is clear: Any company that wants to engage

in e-commerce will have to figure out how to make its Web site workable via a small, handheld computer.

That means building very skinny, very speedy shopping applications with few fancy graphics — a different approach from today's typical online shopping site.

In a separate development indicating Microsoft's strategy, the company on May 4 won a patent for TV technology that lets channels and information services interact. ▀

APRIL 1998 Buys online personal agent company Firefly Network Inc. in Cambridge, Mass., for an estimated \$40 million

JUNE 1998 Invests \$212.5 million for 10% of the Road Runner cable modem company owned by Time Warner Inc. and MediaOne Group Inc.

JANUARY Buys 5% stake in British cable company NTL Inc. for \$500 million

MARCH Buys 5% of Dialogic Corp., an Internet telephony company in Parsippany, N.J., for \$24 million

APRIL Says it will invest \$20 million over three years in Spyglass Inc., which makes software for consumer devices

MAY Makes bid to take over Swedish mobile phone and Internet company Sendi AB for \$30 million

EDS Pours On the E-Business Catch-Up

E-commerce unit formed to help boost revenue; analysts ask what took so long

BY THOMAS HOFFMAN

In an effort to put itself into the lucrative e-commerce game and reverse its flagging fortunes, Electronic Data Systems Corp. has created a central electronic-business services unit.

EDS has already been offering electronic-business services through its divisions. But the new unit makes those services more focused and re-

Analysts applauded EDS for formulating an e-commerce strategy, but they also chided the Plano, Texas, services giant for being late to a market where IBM and Andersen Consulting have established themselves as leaders.

"When you think of EDS, you think of someone who manages mundane technical operations," said Matthew Nordan, an analyst at Forrester Research Inc. in Cambridge,

Mass. EDS "should have made this move a year ago," Nordan added.

Room to Grow

Nevertheless, there are significant revenue opportunities for EDS and others in an electronic-business space where there are 20% profit margins, said Meshe Katz, an analyst at S.G. Cowen & Co. in New York.

Called E-Business Solutions, the new unit was first disclosed during a securities analysts meeting about two weeks ago when EDS announced plans to cut 5,200 jobs after

posting a loss of \$20.6 million for the first quarter [CW, May 3]. The company said restructuring costs made up part of the loss.

The new group combines EDS businesses such as Centrotec, Electronic Business and CIO Services, which total \$2 billion in revenue and 20,000 employees — or roughly half the staff IBM has, Nordan said.

EDS "needs to keep morale up" during the downsizing, "but if they can get employees excited about the new [electronic-business] focus, that will help," said Cynthia Murphy, an analyst at International Data Corp. in Framingham, Mass. ▀

MARYFRAN JOHNSON

Hot tickets

IF EVER THERE WAS A GIDDIER time to be an emerging technology company, it's hard to say when that might have been. Every day, it seems, a flurry of start-ups, spin-offs and electronic businesses appears on the horizon of our busy, distracting world. The investors and day traders immediately wonder which one will be the next eBay or Yahoo. But for corporate IT, the question is a profoundly different one.

Which one of these fledgling companies has the technology or service that could fuel the IT project behind your next business coup?

I was talking recently with a managing director at a leading Wall Street brokerage, which has been quietly vetting high-tech start-ups. The firm evaluates and nurtures certain early-stage vendors with products in areas as varied as data management, object databases and Web technologies. These young companies are rigorously examined not only by the technical teams, but also by the venture capital unit, because the brokerage takes a minority equity stake in the chosen few. Of 100 companies checked out in the past two years, only six have made it to strategic-partnership status so far.

It was gratifying to find such a vivid example of corporate IT interest in start-ups because it maps well with Computerworld's



MARYFRAN JOHNSON is executive editor of Computerworld. Contact her at maryfran.johnson@computerworld.com.

own expanding coverage. We now have a weekly Emerging Companies page in our Technology section (page 86), where we evaluate what newcomers have to offer your business. We look at everything from current customers to future stumbling blocks to broader market impact and staying power. In the fall, we'll publish a supplement on the Top 100 Emerging Companies to watch in 2000.

In the meantime, we're busy gathering information on these

companies through a self-nomination form on our Web site (www.computerworld.com) — and we'd welcome your help.

If your IT or business units are working with a high-potential small vendor that should be on the corporate IT radar screen, please send us an e-mail at emerging@computerworld.com, or point the company to our Web site. Somewhere out there, some little yahoo will thank you!

WILLIAM ULRICH

Fed's mixed Y2K messages could spawn panic

THE U.S. GOVERNMENT claims that the worst year 2000 scenario we face is panic. But that may become a self-fulfilling prophecy. Inconsistent Y2K messages from the White House could increase perceptions of an escalating cover-up and, in turn, drive people to panic. If the government wants to avoid such an outcome, it should acknowledge that it doesn't know what to expect so we can prepare for a range of possible problems.

In an April 22 speech to the Asia-Pacific Economic Cooperation (APEC) forum, a major regional organization, the president's year 2000 czar, John Koskinen, said that "a growing problem confronting every country is the risk of overreaction by the public."

He added, "We expect that our basic infrastructure will hold, that our electric power grids will function, that our telecommunications systems will work effectively and that our banking systems will not have major difficulties."

It sounds like everything is fine. So why worry about panic?

But wait a minute. In the same speech, Koskinen said, "We've told our local governments and state governments that they need to be prepared to handle emergencies on their own, since the federal government can't be everywhere dealing with every problem in light of the large number of problems that we are likely to have."

Those comments regarding a "large number of problems" are Koskinen's strongest to date. Is this a change of position or lack of one? Why share those concerns with a foreign audience but not with Americans? Maybe he doesn't want to panic us.

Ultimately, Koskinen doesn't know what will happen in the early months of 2000. Working phones and electricity don't rule out failures in production, transportation, imports and exports, local government, water or small business. If serious problems do emerge and people are unprepared, then maybe we'll panic.

According to an official training manual for Red Cross Disaster Action Teams, more than 300 studies show that three elements must occur con-



WILLIAM ULRICH is president of Tactical Strategy Group Inc. and co-founder of Strategic Research LLP. Contact him at will@tactical.com.



currently for people in panic. Panic occurs when 1) individuals are in immediate and certain danger; 2) there are few or no escape routes; and 3) there's a lack of communication about what's happening.

The first two can be ruled out if there are no serious year 2000 problems. If there are problems and people are told in advance, then element three is diffused, and mass panic will be avoided.

If the government wants to avoid panic when problems occur, it should extend its preparation campaign to communities and individuals.

Although corporations are building contingency plans, few individuals and communities are following suit. If the problem is acute, many will be unprepared.

That lack of preparation — and having a government that misleads us along the way — will escalate panic and elongate the recovery cycle. ■

DAVID MOSCHELLA

Internet utilities will rock IT world

UNTIL RECENTLY, few words generated less excitement than utility. Water, gas, electric, telephone and other systems may be essential, but they still conjure up images of bloated, monopoly-like institutions that have their own unique definition of service. How many times have you been told that the service man (they are inevitably men) can come by on Tuesday — but that the exact time is up in the air?

Baseball fans know that being a utility player is just about the most unexciting position there is.

All this comes to mind as I listen to the rising vendor drumbeat regarding the emergence of utility-like Internet services. The idea, as typified by Sun Microsystems' recent Service Provider Initiative, is pretty simple. Instead of buying, installing and operating your own hardware and software products, you would simply contract for various applications from various network service providers.

As buyers, you would select the application options you need just as you do with telephone services today.

Regular readers of this column know that I strongly agree that this network-centric, services-driven vision will eventually prevail. In 1996, I

wrote a whole book on the subject. Nevertheless, it's important to sift through the current vendor hype, which will get only louder because it's both completely sincere and self-serving. Since Sun, and particularly CEO Scott McNeely, are now the most vocal proponents of that view, let's use their situation as an example.

If end-user IT purchases migrate away from hardware and software products and toward competing network services, Sun will benefit in two big ways:

First, service providers will want to share and leverage their systems and therefore will tend to require much larger configurations than those designed for an individual company. That plays directly to Sun's strength in high-end systems, which is perhaps Windows NT's single biggest weakness.

Second, if service providers replace end users as Sun's core customer base, the sales process itself is likely to become more sophisticated and technical. Lacking deep systems experience, many end-user companies often choose to go with the safest, brand-name solution.

That name used to be IBM, but now it's clearly Microsoft. Sun already does much better with savvy Internet service providers and big Web sites than it does in typical corporate IT environments.

So a shift toward a network-centric industry would surely help Sun, just as it would aid Oracle, EMC and others that prefer to sell high-end products to knowledgeable buyers. It will also generally be a good thing for many business customers, who will eventually come to appreciate the fact that buying services is simpler and more cost-effective than building and operating big computing infrastructures.

For Sun, EMC and the rest, the transition from products to services will be mostly a painless and beneficial migration to more favorable sales channels. But for IT professionals, the changes could be much more wrenching. It's here that the staid, almost boring, connotations of the word utility become completely misleading.

The reality is that if companies start to buy fewer systems and fewer packaged applications, they'll eventually need fewer IT professionals. End-user departments, uncomfortable with the acronyms, jargon and complexity of today's technology products, will be much more willing to select the various IT services they require.

Thus, IT departments will either have to futilely resist the inevitable services tide or support changes that radically affect their traditional working patterns. When's the last time your utility asked you to do that? ■

READERS' LETTERS

Give Cobol a break

IN THE MARCH 15 Flashback feature ("The Creation of Cobol"), the writer implies that Cobol is the reason for the year 2000 problem. Given the enormous code base (estimated at \$5 trillion), it's correct to say the year 2000 problem manifests itself in Cobol applications. But it wasn't caused by Cobol.

Year 2000 problems are nonsectarian in nature. Programs containing Y2K problems have been written in Cobol, Fortran, Basic, Visual Basic, Pascal, C, C++ and other languages. The decision to "carry the century" is a design decision made on a case-by-case basis. Many Cobol applications were created to carry century data and have been year 2000-compliant for decades. Conversely, many newer C++ and Visual Basic applications are not.

It's also hard to under-

stand how the storage capacity issue was missed in your article. Back when mainframe memory was scant, it was imperative to shave cycles and cut down on data storage. It's all too easy to pass judgment on decisions made 30 years ago.

Jonathan Sayles
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THE Y2K problem did not start 40 years ago with the development of Cobol. In fact, it didn't even start with computers.

I started programming in the early '60s and was involved in several organizations' transitions from unit record equipment (sorters, collators, accounting machines) to computers. The unit record equipment used 80-column punched cards. Every effort was made to cram as much information into those 80

columns as possible, including using two-digit years. The cost involved in expanding a record to a second card was considerable. The file would be twice as large and require twice as much time to process. Furthermore, the complications of a two-card record would involve changes to most procedures.

Most companies took the approach of writing programs to replace certain processing that had been done by unit record equipment, but the same card files were used. Thus, the two-digit year was inherited from the earlier unit record systems. Years later, when those files were loaded to tape or disk to eliminate the punched cards, the two-digit year was carried over.

These decisions are not made by programmers; they're made by management. If I had designed a system that used four-digit years and another analyst had

challenged my design on the grounds that he could save tens of thousands of dollars annually in storage costs by using two-digit years, I would have been pounding the pavement looking for a job, and the other analyst would have been promoted.

The Y2K problem can't be blamed on any single group or technology. The problem isn't even limited to mainframe computers. It exists in all sizes and types of computers.

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COMPUTERWORLD welcomes comments from its readers.

Letters shouldn't exceed 200 words and should be addressed to Marilyn Johnson, Executive Editor, Computerworld, PO Box 9771, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-8831. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.



DAVID MOSCHELLA is an author, independent consultant and weekly columnist for Computerworld. Contact him at dmoschella@earthlink.net.

BILL LABERIS

Let's put the 'customer' in CRM

TO THOSE OF YOU who are building Internet-based customer relationship management (CRM) systems, I offer this one piece of advice: Don't forget the customer.

As the zeal for e-commerce grows, so does the market for CRM. These systems are highly complex, hardware-software-networking concoctions that facilitate the business/customer relationship. And the CRM market is booming. International Data Corp. believes that CRM is on the verge of tremendous growth and will be a \$9 billion market in four years. Nonhuman interfaces will re-

place the person-to-person dynamics that have defined the business/customer relationship.

There already is one sterling example of machines attempting to replace people in the business/customer relationship. I'm talking about that paragon of modern efficiency, automated telephone systems. Don't you hate them? How many of you have simply hung up on them?

If that's the kind of model around which ambitious CRM solutions will be built, then all those starstruck predictions of triple digit e-commerce will prove highly inaccurate. Can machines really automate significant portions of what has always been a person-to-person relationship? I have my doubts.

Consider this simple anecdote. I am a (largely satisfied) customer of McAfee Associates' antivirus software. This kind of product is like an annuity for the vendor. You buy it fairly cheaply then pay annual fees for upgrades that fight new viral strains.

In January I tried to download the latest patch, but my password didn't work. I found out that it had expired six months earlier. McAfee has my phone number, address and e-mail address, yet I received no notification that my upgrade license had expired. Of course I would have renewed, as \$30 is a pretty cheap way of protecting my electronic assets for a year.

But why on earth didn't a computer vendor, of all businesses, understand how to leverage the Internet to manage its customers, not to mention increase revenue and profit? Why did I have to make two phone calls, each of which had me wade through their automated phone system and take up their support people's time, to complete a

simple license renewal I would have undertaken with an e-mail reminder six months earlier?

With all the detailed information the airlines have on frequent fliers, why does the typical business flier who pays \$1,000 to fly coast-to-coast midweek feel much less like a pampered client and more like a head of cattle? How often after making a big purchase (a stereo, a car, a mortgage) do you experience the personal touch of some meaningful follow-up? Maybe a phone call, a personal note.

Of course, CRM systems must concern themselves with far more lofty business functions, like integration of front-office applications with critical back-office applications, including accounting, inventory, order fulfillment and the like. By its nature, CRM is supposed to support many kinds of customer interactions, all designed to retain the customer for the long haul and ultimately boost the bottom line.

Just don't forget that business and selling is still about people. One of the CRM solution architect's most difficult yet utterly necessary undertakings is to imagine himself in the customer's shoes. Once there, ask yourself, "How would I want all this software, hardware and networking to treat me?"

JOSEPH E. MAGLITTA

Tetched by an angel

FORGET BILL GATES. I have met the new, true captains of e-commerce. It's my Uncle Charlie and his crew-mates.

For months I've watched the Net tsunami surge from Wall Street to Main Street and back again. But I'd never appreciated how much our industry and professional fates had been optioned to technology landlubbers. Until last week.

I was prowling the vast halls of the "Internet Inferno" trade show and exhibition in Rhode Island (that's right — it covered the entire state). In the sea of bald, bobbing heads, I spotted a bald head I recognized: my Uncle Charlie. "Ahoy!" I puttered. "What are you doing here?"

"Just looking at companies."

He parsed my puzzled look.

"You know, I've been pretty active in this in-

vesting club we started with some fellows from the Knights of Columbus and my W'V'V sub crew. We've made a bunch of money investing in these Internet stocks. So last month we decided to start our own 'angel' group. We go around financing new Internet businesses that look promising. We call ourselves 'Charlie's Angels.'"

I managed an off-balance chuckle. Had he found anything good at the show today?

"Lots," Uncle Charlie replied. "C'mon." He found a clean table at the Snak-Shak, then took several manila folders from an old Radio Shack bag. "Take a gander at these beauties."

I opened the first business plan and turned to the summary.

Cons N' Kids. This innovative online service matches specially trained work-release prisoners with families and agencies looking for quality day or after-school care. Future plans call for a variety of complementary Web-based offerings, including "Bunkin' In," "Street School" and "Yard Time." We're breakin' out of the day-care doldrums!

I looked up. Charlie flicked some honey-bun crumbs from his flannel shirt and waved. "Keep reading!"

Dumpster.com. The Net-age way to dine at the nation's five-star restaurants. Unsold specials from leading gourmet chefs arrive at your door via overnight express — less than 48 hours after they're featured! Hundreds of unforgettable gastronomic adventures are just a mouse click away.

"C'mon!" Uncle Charlie shouted. "Read 'em all!"

CyberScrubbers. Don't let greasy keyboards, smeary screens and mucky mice wipe out all the fun from your Web-surfing experience! This breakthrough service dispatches specially trained technicians to home or office to restore your computing investment to its original squeaky-clean condition. We guarantee a desktop so clean you can eat off it — but for heaven's sake don't!

www.the-zen-zone.com. Overstimulated by stupid shockwaves, dancing banners and other annoying Web noise? Then stop and spend a few quiet moments at The Zen Zone — the Internet's first completely empty rest stop. Bask in the soothing, silent glow of gentle nothingness. You'll remember to face the Net completely centered and rejuvenated. What is the sound of one hand surfing? Silence, of course!

Net Noise. Our company brings the power of scratch-and-sniff technology to any Web user equipped with our patented new "CyberSchnozz" peripheral and 28.8 modem. Personal hygiene sprays, potpourri, pipe tobacco, vacation spots — a world of online smells comes alive in full olfactory glory...

"This is... quite a portfolio," I stammered. Didn't want to discourage the old guy. He was, after all, my mother's only brother. And a millionaire. I'd be gentle.

"So what happens when all these Net stocks hit low tide and start to sink?" I shouted "You and your club members will wind up shipwrecked."

"Well... I don't know. We are looking at buying a mink ranch near Vegas... Anyway, I gotta go — I have a 2 o'clock with some guys who invented an 'enterprise battery charger'..."



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JOSEPH E. MAGLITTA is Computerworld's industry editor. Contact him at jmaglitta@computerworld.com.

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NETWORK MANAGEMENT

TRAFFIC MONITORING

ELECTRONIC BILLING

BUSINESS

PRIVACY PERILS

Consumer privacy is becoming increasingly important as e-commerce grows and becomes more sophisticated. Many sites don't treat privacy as a priority, but recent events show that those that abuse their customers will lose them. **46**

FEDEX TO LINK UP SUPPLIERS

Federal Express is replacing the mishmash of systems it uses to buy supplies globally. An application will go live this summer to start the process, but its full functions will have to wait until the next version of the Internet arrives. **38**

Y2K SALES PLANS

Capacity planners generally know what effect holidays and other events will have on sales and can adjust inventories accordingly. But customer responses to Y2K are so unpredictable that many aren't even trying to plan for it. **46**

CAVEAT EMPTOR

Fleet bought a string of credit-card businesses last year, making it the nation's fourth-largest credit-card operation. But the ancient infrastructure at one new acquisition was a major drag on business; now an overhaul is bringing it up-to-date. **43**

911 OFF-LINE?

The General Accounting Office reports that there

is a chance that Y2K glitches will take down some 911 emergency response systems at year's end. Some users prepare their own backup systems, while others hope remediators will hit their fourth-quarter deadline. **40**

YEAR 2000 CONFESSIONS

Stonewalling the public on your Y2K preparations may work in some industries, but in highly visible, highly competitive businesses, it may cause a backlash. Ed Yourdon warns. Keep an eye on transportation and banks for early warnings. **45**

SCHWAB RECRUITS

Schwab's online group held a special job fair two weeks ago to try to lure e-commerce pros whose work schedules keep them from standard job fairs. It attracted 300-plus to a pep rally showing off Schwab's coolest technology. **38**

MAKING MENTORS

Mentoring programs benefit everyone, according to those who have managed or participated in them. Mentors earn respect and gain leadership skills, and mentorees become more productive — and more loyal. **68**

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BATTLE-TESTED IT PEOPLE

PAT SHEDIACK (pictured) of PeopleServe in Dublin, Ohio, is one of many IT professionals whose military experience helps them today in the corporate world. IT hiring managers see an armed forces background as an advantage, which may explain why 40% of the more than 200,000 veterans who leave the services every year wind up landing jobs in IT.

48

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FEDEX BETS ON INTERNET2 FOR CRUCIAL PURCHASING TOOL

Global system could cut hundreds of millions of dollars from the cost of everything from pens to truck parts

BY ANDREW NACHISON

THE FASTER, more secure and more reliable next-generation Internet is still somewhere in the future. But enough progress has been made on an experimental version of that network, dubbed Internet2, that Federal Express Corp. is building a global purchasing system that will take advantage of it when it arrives.

"A year ago, if I'd have said, 'Look, I want to go buy some great backbone software to manage procurement everywhere around the world,' [anyone else would] say, 'Are you out of your mind? Where's the bandwidth? Where are you going to get the software?'" said Toby Redshaw, vice president of global supply-chain integration at FedEx.

But now, "given what we think the future looks like, we really believe you can do that," he said.

The initial version of the FedEx system, due to launch this summer, will eventually allow more than 100,000 em-

I would be stupid to [host critical data] outside our firewall on somebody else's machine if... we were moving toward a more chaotic environment.

**TOBY REDSHAW,
VICE PRESIDENT,
FEDERAL EXPRESS**

ployees in 90 countries to purchase everything from ballpoint pens to truck parts. In its initial phase, the application will use the existing Internet infrastructure. It will expand its features as Internet2, which will boost the performance and security of the Web, becomes a reality. It will replace a hodgepodge of private networks and paper-based processes that waste time and make it hard for FedEx to take full advantage of its buying power.

The new system will allow financial, legal, technical and business managers to review spending plans at the same time, rather than waiting for one another's decisions before evaluating a purchase.

Redshaw declined to disclose the precise cost of the system, which he said is in the millions of dollars, but estimated that if FedEx can cut 10% from its annual purchasing costs, "that's \$500 million.

They're talking about huge shareholder value."

PeopleSoft Inc. purchasing and inventory systems provide back-end financial capabilities, while Hewlett-Packard Co. will host the data — another sign of Redshaw's faith that Internet2 will be more secure and reliable than today's Web.

"I would be stupid to [host critical data] outside our firewall on somebody else's machine if I thought... we were moving toward a more chaotic, more unstable environment in the network world," Redshaw said.

Moving Forward

Michael Rubin, who manages AT&T Corp.'s involvement with the Internet2 project, said he expects Internet2 advances to make their way into the commercial Internet within three years.

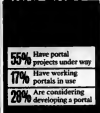
Some corporate information technology managers are reluctant to develop systems based on IP standards because of problems with scalability and reliability, said Matthew Kover, senior data communications analyst at The Yankee

Group in Boston.

Richard Schoenthaler, manager of compliance systems at Ecolab Inc., a St. Paul, Minn., cleaning products and services firm, is one example. He said the next-generation Internet "could become as important mechanism for online meetings, to distribute advice and data efficiently and in real time." Still, "we're not making decisions" until he sees the actual improvements, Schoenthaler said. ■

Nachison is a freelance writer in Indianapolis.

SNAPSHOT



SOURCE: THE DELTA GROUP, BOSTON

Schwab Tries Open House to Attract E-Commerce Talent

Analysts say such events get attention, but aren't ultimate solution to staffing shortage

BY BARE COLE-GOMOLSKI

You have e-commerce jobs to fill. But how will you attract fully employed e-commerce experts who are too busy during the day to job hunt? If you

are the electronic brokerage division at Charles Schwab & Co., you plan an open house on a weekday evening at a hotel near your headquarters, advertise the event heavily on the

Web and hold the equivalent of a corporate pep rally.

The San Francisco-based division recently drew about 325 potential applicants to the event, which it dubbed E-vision. The goal was to attract technical workers and marketing and product development specialists. The electronic brokerage group wants to hire about 150 of those people by year's end.

Because Schwab, like others, is in the midst of an information technology labor drought and is located in a highly competitive area of the country, "we need to use different means if we're going to hire qualified people," said Bob Taylor, a Schwab vice president. What made E-vision different from a job fair is that "our posture was more of telling the Schwab

story and why this is a cool place to work."

Potential attendees learned about the event on Schwab's Web site or at portals like Yahoo. They were asked to fill out a Web form that asked whether they had technical experience, and if so, how much.

Schwab managers, clad in yellow T-shirts, offered demos of internally produced products at E-vision, while Schwab executives and top managers from e-commerce stalwarts like Excite Inc. gave speeches.

'Excellent' Event

"I thought it was excellent," said Beth Wood, a former Intel Corp. software engineering manager from Dublin, Calif., who attended the event. "It wasn't a dry, boring affair like these things can be."

Analysts said such events, which are becoming more common, aren't a silver bullet for the IT staffing challenge. For instance, even though 1,100 people signed up for the event, only about one-third actually showed up.

Still, "this is a nonthreatening way for applicants to get information about the company," said Kerian Vogel, a vice president at Darwin Partners, an IT consultancy and research firm in Wakefield, Mass. "Technical people like [the format] because in this market everyone is so aggressive."

Perhaps, but Wood said she was disappointed that things were so loose. She wasn't sure when — or if — she would hear back from Schwab, she said.

"Going to this event made me want to work there," Wood said. "I left with a feeling of anticipation, but wasn't given any concrete information about when I might hear something." ■

How Schwab's E-vision Event Shined Out:

SOFT-SELL APPROACH focused on building interest in the company

SPEAKERS included top Schwab executives as well as high-profile people from other e-commerce companies

POTENTIAL APPLICANTS had to request an invitation on the Web prior to attending

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COMPANIES GIRD FOR 911 RESPONSE FAILURES

Y2K contingency planning includes options for calling fire, police help in emergency

BY PATRICK THORSDALE

THERE'S NO guarantee that 911 emergency systems will work in year 2000 — and that has prompted some companies to investigate the Y2K readiness of local police, fire and medical rescue squads.

Elmer Gau, the year 2000 program manager at Dunlop Tire Corp. in Buffalo, N.Y., has done just that. And even though he's been told that local agencies will complete their year 2000 work in the fourth quarter, Gau said his company will also be ready with contingency plans.

Establishing direct radio

links with emergency services and designating teams at company headquarters and its plants to "physically go and get police and fire" are being considered, he said.

Not all companies plan to take the same steps. A Sears, Roebuck and Co. official said contacting local emergency services about their year 2000 readiness isn't feasible. "If we were an organization that had one major location, it might be different. But we're not — we have over 3,000 locations," said spokeswoman Jan Drummond.

Federal officials said they have little information about the year 2000 status of emergency services.



The 411 on 911 Compliance:

- There are 300,000 emergency 911 calls made daily in the U.S.
- Emergency response involves more than dialing 911. Computer-aided systems help in dispatching and routing calls.
- According to the U.S. General Accounting Office, the year 2000 compliance of the systems that handle emergency calls is largely unknown.

Michael Powell, a commissioner at the Federal Communications Commission, warned Congress that unless those systems are repaired, "Americans are likely to experience delays and perhaps even a failure of emergency response."

Y2K problems won't affect the telephone grid — calls will get through, federal officials said. But emergency calls could get lost, or there may be delays in responding to them if computer-aided dispatch, radio networks and other back-end systems fail. Most at risk are rural areas with limited resources, said Steve Davis, a recently retired senior executive at Montgomery County in Maryland who headed its year 2000 planning. "If I were somebody that owns a manufacturing plant in a small town, I would be worried," he said.

Emergency preparedness is a two-way street. Emergency services have been contacting local companies, especially those that deal with hazardous materials, to determine their year 2000 risks. ▀

Few Sales Forecasts Factor In Panic Buying

Y2K tosses wrench into gauging demand

BY STACEY COLLETT

Typically, May and June are forecasting months in which businesses anticipate what consumers will be buying and spending in the fourth quarter. But threats of year 2000 stockpiling by consumers have created a huge X-factor in manufacturing, sales and distribution planning.

That has many industries so perplexed that barely one company in five is even trying to plan for change in demand, one analyst said.

Companies traditionally look at prior years' volumes for the quarter and factor in an average growth rate to arrive at their production numbers. But fears that Y2K computer glitches will halt future production of necessities like water, as well as favorites like cereal, have put a new spin on this planning.

The problem, industry observers said, is that forecasting models will vary for each com-

pany, depending on the type of product in demand and the region where it's sold. The best that many industry groups can do is offer guidelines. The most common advice is simply to survey customers about their purchasing plans.

Experts said the worst thing a company can do is ignore year 2000's effect on their planning. But that's what many are doing. "Only about 20% of

companies are bothering to factor Y2K's effects into their forecasting," said Lou Marvoci, an analyst at Garner Group Inc. in Stamford, Conn.

For grocery manufacturers, no firm estimates exist on what products shoppers will buy ahead of time or how much they will purchase, according to the Grocery Manufacturers of America (GMA) in Washington. But many food manufac-

turers are beginning to survey their customers. Items likely to be stockpiled include bottled water, baby food, canned goods and dairy products, according to the GMA.

Water bottler Danone International Brands Inc. in Stamford, Conn., will begin its year 2000 forecasting in September. "I don't think December will [see] nearly that much of an increase" as there is in summer months, said Tim Wlock, operations manager at Danone's Milesburg, Pa., plant. Danone will survey its distributors first

to gauge their supply needs, then ramp up its bottling accordingly, he said.

The banking industry is experiencing its own angst over potential cash hoarding. "We all go through an anxiety bell curve. We're hoping by December that customers go through that and come back down," said John Hall, spokesman for the American Bankers Association (ABA) in Washington.

The ABA is advising members to survey their largest business customers' cash needs and to plan accordingly. ▀

SNAPSHOT

Competitor Comparison

Here's how the regional Bell operating companies are doing with their year 2000 work:

	AT&T BELL CORP.	VERIZON SYSTEMS	AMERICA'S TELEPHONE	NEW JERSEY BELL	TELEPHONE COMPANY
Fortune 500 rank	25	35	87	40	135
Cash through 1999	\$202M*	\$87M	\$120M*	\$140M	\$115M
Overall estimate of year 2000 work	\$225M to \$375M*	\$250M to \$350M	\$280M*	\$265M	\$175M
Notes	Expects network and other mission-critical systems to be compliant by end of next month.	Expects all work on most mission-critical systems to be done by end of next month.	Integration testing for certain critical systems is scheduled to be completed by Sept. 30.	Testing is more than two-thirds complete. Contingency plans are being written.	Expects to finish network testing and contingency planning activity by midyear.

*Includes capital expenditures



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Y2K Doesn't Halt Software Installations

Many of those allowed to install their own desktop applications don't lose privilege

BY DAVID OWENSTEIN

Most IT departments and year 2000 teams aren't letting concern about the year 2000 problem change their rules about what end users can load on their PCs.

Instead, a lot of information technology managers said they will stick with current approaches to desktop management — whether that means maintaining strict controls on what users can add to PCs or allowing total freedom. It's better to focus on business needs and trust a proven policy than to radically change to accommodate Y2K, they said.

Even IT managers who lock

down PCs with software that restricts what users can install or run say they wouldn't do that just to make sure users didn't reinfect a PC that was Y2K-compliant. Most companies are trusting users to follow policies forbidding unauthorized software. Some are locking up that trust with testing tools to verify compliance.

Lockdowns or broad code freezes could stunt innovation, said analysts Dick Heiman at International Data Corp. in Framingham, Mass., and Norbert Kriebel at Giga Information Group Inc. in Cambridge, Mass.

"Our Y2K team doesn't want to be the roadblock of pro-

gress," said John Weigel, technical architect at Andersen Corp., a window maker in Bayport, Minn. Rather than institute a freeze, the company later this year will require that new software rollouts have a business justification that can overcome year 2000 concerns.

On the desktop, Andersen is locking down Windows NT-based PCs, but the effort is aimed at lowering PC costs, not year 2000 compliance, although it will have that effect.

Here's how other users said they're trying to maintain Y2K compliance on the desktop:

- At BankBoston, which is merging with Fleet Financial Group Inc., end users retain control of their PCs but must sign a statement attesting to their year 2000 compliance, said Y2K project manager

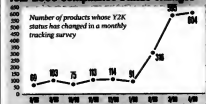
David Iacino. IT provides testing tools to help users achieve and maintain compliance.

- At Colgate-Palmolive Co.'s technology center in Piscataway, N.J., engineers and researchers are allowed to install any applications they need, said IT director Forrest L. Jerome III. They're responsible for Y2K compliance.

- At retailer Goody's Family Clothing Inc. in Knoxville, Tenn., employees are encouraged to use only standard IT-supported software, but PCs won't be locked down, said technical services director Ken Boyd. The company will use Intel Corp.'s LAN Manager to scan each PC and identify any problems users might create. ▶

SNAPSHOT

Year 2000 Compliance Status Changes



great moments in disaster prevention



1912 The first successful parachute jump.



1964 Seat belts become standard equipment.

Fleet Gains in \$20M Credit-Card IT Overhaul

Aims to pull together newly acquired units and better market to customers

BY THOMAS HOFFMAN

When Fleet Financial Group purchased Advanta Corp.'s credit-card business in March 1998, the deal instantly made Fleet the eighth-largest credit-card issuer in the U.S.

However, it also left Fleet with a 1980s-style data processing environment that would require a serious overhaul to compete for today's consumer business.

Advanta had "a low-budget [information technology] shop — there was a hodgepodge of antiquated PCs and servers, everything you could imagine, with no consistency," said Joe Szabo, director of enterprise

computing at Fleet Credit Card in Horsham, Pa. Overhauling Advanta's operations became even more critical after Fleet later acquired Prospect Heights, Ill.-based Household Finance Corp. and the credit-card portfolio for Mellon Bank Corp. in Pittsburgh and had to meld them into a credit-card business that became the nation's fourth largest.

To pull those operations together and aim additional sales at its 30 million MasterCard and Visa cardholders, Fleet last year embarked on a \$20 million overhaul of Advanta's IT operations.

The results have been im-

pressive enough to catch Wall Street's attention. Fleet has "completely turned around" Advanta's business operations and made them more efficient, said Kate Blecher, an analyst at Brown Brothers Harriman & Co. in New York.

Double-digit revenue and cardholder growth "has helped strengthen Fleet's presence on the credit-card side," said Diana Yates, an analyst at A. G. Edwards & Sons Inc. in St. Louis.

Double-Digit Growth

The project centered on the deployment of 3Com Corp. Ethernet virtual LANs and Fiber Distributed Data Interface systems to link Fleet's four customer call centers and customer data. Fleet upgraded from older 3Com switches and

shared hubs that were overtaken by the added traffic from the acquisitions. Fleet also added 83 Compaq Computer Corp. ProLiant servers and expanded its EMC Corp. disk storage system, Szabo said.

By pulling its call centers to-

JUST THE FACTS

Fleet Changes

Company: Fleet Credit Card, Horsham, Pa.

Challenge: To upgrade ancient IT infrastructure inherited in March 1998 acquisition of Advanta's credit-card business.

Solution: Upgraded to 3Com virtual LANs and metropolitan area network to link four customer call centers, standardizing on Compaq ProLiant servers and installed voice-recognition and computer telephony interface systems to streamline call centers and save customer data more effectively for cross-selling opportunities.

Results: Reduced call-center costs by 30%; created targeted marketing campaigns to support double-digit cardholder and revenue growth.

gether, Fleet can better track customer purchasing habits from a 4T-byte Oracle-based customer data repository and use the information to create targeted marketing campaigns, Szabo said.

For example, an analysis of customer purchasing habits might show that a large volume of Fleet cardholders shop at L. L. Bean Inc. Fleet could then "guarantee X amount of business" to the Freeport, Maine, catalog retailer if L. L. Bean offered a sales promotion to Fleet cardholders, he said.

The strategy seems to be paying off. By installing voice-recognition systems and computer-telephony interfaces in each of its call centers, Fleet has enabled call center agents to pull up customer information faster and spend less time on the phone with cardholders. That has helped Fleet slash its call center telephone costs by 30%, Szabo said. ■

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What seat belts did for automobile safety, Micro Focus SmartFind PlusSM from MERANT is doing to curb Y2K problems before the year 2000.

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Often haphazard remediation efforts cause as much trouble as they find. Micro Focus

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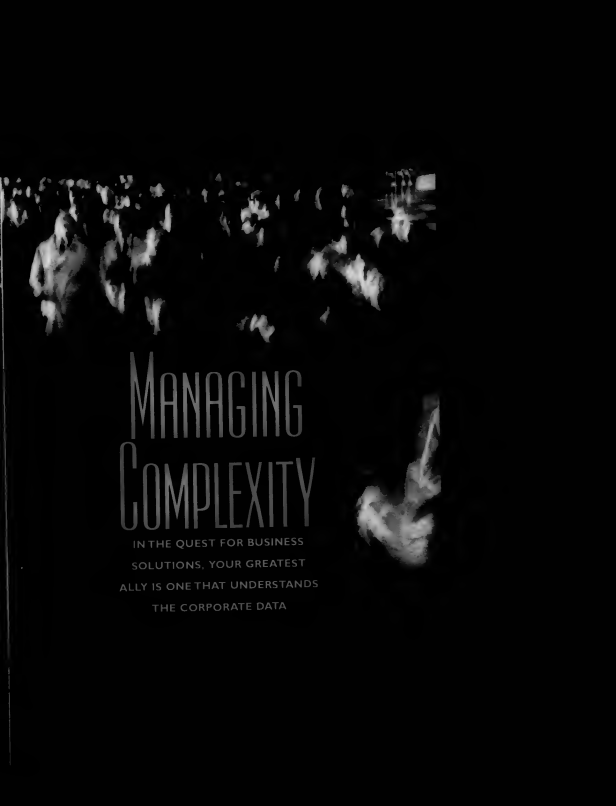
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MANAGING COMPLEXITY

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SOLUTIONS, YOUR GREATEST
ALLY IS ONE THAT UNDERSTANDS
THE CORPORATE DATA

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At Unisys, we're finding ways to help our clients reduce their total cost of operations. And it's a good place to start. We've led the development of the new Unisys Aquanta ES 5000 line of midrange servers. These robust servers feature the equally new Intel® Pentium® III Xeon® processor. They're designed to run on multiple partitions, while maintaining a single-image operation. And they improve availability by providing a fully recoverable environment for applications, databases and transactions. For more posts on our new servers, visit our Web site. Meanwhile, we'll be working on our well, you know.

www.marketplace.unisys.com/ent/



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MANAGING
COMPLEXITY

REDUCING IT COMPLEXITY WITH WINDOWS NT

THE MAELSTROM OF
TECHNOLOGY CHOICES CAN
BE OVERWHELMING. A GROWING
NUMBER OF ORGANIZATIONS
ARE STEMMING THE TIDE BY
STANDARDIZING ON
WINDOWS NT.

THERE ARE COMPLEX IT ENVIRONMENTS, and there are complex IT environments. And then there's the Nasdaq Stock Market. With rapid growth driven by a sonic boom in the listings of high-tech stocks, Nasdaq needed a system that could monitor each of the billions of trades it will soon handle—up to 4 billion each day by 2002. Its system would need to provide extremely high availability while seamlessly and securely processing data from multiple sources.

John Hickey, Nasdaq's chief technology officer, was the first to recognize that yesterday's technology is no match for today's thorny business problems. "The proprietary trade and quote monitoring system we had in place served us well, but it was unable to deal with the complexity of our trading environment," Hickey notes. "It was impacting our ability to do business."

The solution for Nasdaq—and for a growing number of organizations worldwide—is to reduce IT complexity by exploiting Microsoft Windows NT, which offers the ease of use, integration features, low cost and other attributes necessary for a simplified IT environment.

Why Windows NT? Simply put, Windows NT is emerging as a global standard for reliable, scalable and secure computing. The operating system has

already earned a solid reputation for its low cost of administration, its compatibility with heterogeneous computing environments, its ability to host e-mail systems and personal productivity software, and its support for a broad range of software applications.

Now, Windows NT is increasingly finding success in transaction-intensive, mission-critical environments. How? Leading IT vendors such as Unisys are applying their decades of enterprise computing experience to bolster the operating system's reliability, scalability and security through enterprise-class hardware, software and services.

"We have worked closely with Windows NT for several years and understand how to combine its capabilities with state-of-the-art middleware to achieve mainframe-level performance," explains Paul Rachal, vice president and general manager of Enterprise NT for Unisys. "We also have the expertise to ensure that Windows NT provides a solution that meets specific business objectives, and to develop a computing architecture that melds easily with existing infrastructures while preparing for future needs," he says. The result is that Windows NT is becoming the system that IT management is most comfortable planning on for the future.

EASE YOUR IT MIND

Organizations today are faced with a crazy-quilt infrastructure of mixed computing platforms, demands on IT resources that double and triple every year, and a chronic shortage of skilled IT staff. "A lot more functionality is being automated within IT systems," says Robert Dorin, a senior analyst with Aberdeen Group in Boston. "The whole infrastructure of information technology has become more complex." Add to that a pace of technology change increasingly driven by "Internet time," and it's no wonder organizations are looking for ways to reduce that complexity and ensure IT investments contribute to business success.

How can Windows NT help? Let's start with ease of use. At many organizations, understaffed IT departments barely have enough personnel bandwidth to maintain current operations, notes Joe Clabby, vice president of platforms and services at Aberdeen. That means companies can't take advantage of IT to exploit new business opportunities. And that's one good reason Windows NT has earned such favor: Its relative ease of use compared with other enterprise computing platforms reduces recruiting and training costs, easing

WINDOWS NT POSTS BIG GAINS

Percent of business applications supported by each operating system today and two years from now

Operating System	Today	In two years	%Change
Unix	30%	31%	3.6%
NT Server	31.6%	44.1%	39.3%
Netware	27.7%	17.6%	(-36.6%)
Others	10.9%	7.4%	(-32.4%)

Source: Computerworld Information Management Group Issue of 201 responses

demands on existing staff.

"Windows NT is making a big impact because it offers a standardized software platform," notes Richard Fichera, vice president of research at Giga Information Group in Cambridge, Mass. "That's a major attraction for IT management, because it carries with it the benefits of standardized training, software and skill sets."

Just as important is the availability of a broad

MAKING THE TRADE

Windows NT will allow the Nasdaq Stock Market to monitor mission-critical, real-time market activity

Don't tell John Hickey and Ed Flynn that Windows NT isn't reliable, won't scale or doesn't support high-volume transaction processing environments over an extended period. Why? Because they will tell you about the results of 30 benchmark tests in which two Unisys servers running in parallel under Windows NT processed up to two billion trades in a single simulated day.

Hickey is executive vice president and chief technology officer of the Nasdaq Stock Market. Flynn is director of Nasdaq technical architecture. They worked with Unisys to conduct the groundbreaking tests, which proved that Windows NT can support Nasdaq's mission-critical, real-time system to facilitate regulatory oversight of market activity.

Specifically, the proof-of-concept tests were used to gauge the feasibility of developing Nasdaq's new Surveillance Delivery Real-Time (SDR) application for the Nasdaq MarketWatch department. SDR will analyze quote, trade and news transactions and send alerts to MarketWatch analysts for review.

Nasdaq moved to Windows NT in part because of its scalability. The benchmark test data revealed that, in addition to running 800 transactions per second continuously for the equivalent of eight trading days, the Windows NT-based system provided analysts with alerts within 200 to 700 milliseconds — well under the two-second allowable limit — and demonstrated instant recovery from failure tests with no data loss and immediate backup system availability. "NT does

range of software applications for the Windows NT platform. Microsoft has galvanized a prodigious number of software makers to develop many off-the-shelf solutions for Windows NT. The result: IT departments can spend less time developing software for basic operations and more time creating solutions that provide competitive advantage.

Ease of integration is another weapon Windows NT brings to the war on IT complexity. Windows NT integrates well with UNIX and proprietary systems, enabling organizations to retain their investments in existing IT infrastructures while transitioning to a less complex IT environment. In fact, in a recent survey of 500 North American IT executives by Framingham, Mass.-based International Data Corp. (IDC), nearly half said they plan to migrate some of their UNIX database functions to Windows NT and expect little trouble doing so.

FROM DESKTOP TO DATA CENTER

But how does Windows NT play in the data center, where mainframes traditionally have handled highly sensitive, mission-critical workloads? "Today, much of the mainframe's power and reliability are available in Windows NT," says Rachal. "Enterprise

IT vendors such as Unisys offer powerful hardware that provides the necessary scalability, plus sophisticated software that ensures the highest levels of availability and security.

"Perhaps most important," Rachal continues, "we offer the full range of services — from planning and installation to migration and integration, from application development to network and system management — that is required for truly enterprise-class computing."

The experiences of Nasdaq and other organizations bear that out — a fact that has gone unnoticed by CIOs and other business leaders. A recent survey of nearly 300 North American and European executives conducted for Unisys by independent research firm SOFRES Intersearch in Paris, shows that by 2000, Windows NT will surpass UNIX and proprietary systems as the operating system of choice for both mission-critical computing and overall workloads.

Likewise, an IDC study found that 40% of the units of server software sold were Windows NT — about double the amount of UNIX server units. And a recent study by Computenworld newspaper shows that Windows NT is registering significant

CONTINUED ON PAGE 6



SOURCE: SOFRES INTERSEARCH

scale," insists Flynn. "As more and more processors were thrown into the mix, the system gave us the scalability we needed."

Windows NT will offload such jobs as disseminating information and building indices, he explains, freeing up vital mainframe capacity. Asked if he believes Windows NT systems will begin performing those core mainframe tasks themselves within the next few years, Flynn responds, "I don't think that's too far-fetched at all."

Flynn cites the cooperative role played by Unisys in supporting Nasdaq's high-end Windows NT system. Unisys responded quickly to Nasdaq's needs, he says, providing invaluable expertise and architectural advice. He attributes some of that nimbleness to the tight relationship between Unisys and Microsoft. But ultimately, says Flynn, Nasdaq chose Unisys as a partner because it offered the Windows NT solutions Nasdaq needed to succeed.



Nasdaq Stock Market's Executive Vice President and Chief Technology Officer John Hickey uses a Windows NT-based system to support mission-critical market activity.

GOT MILK? GOT DATA!

Michigan dairy co-op relies on Windows NT and the Internet to simplify data access

Getting information to members of the Michigan Milk Producers Association (MMPA) is the Number 1 priority – and pain point – for Greg Schulley, MMPA's IT director. He is meeting that priority and easing his pain by relying on a combination of Windows NT and Internet technology.

MMPA is a member-owned and operated dairy cooperative serving more than 2,900 dairy farmers in Michigan, Ohio, Indiana and Wisconsin. It is the largest dairy cooperative in the region and provides a variety of services, ranging from lab tests to wind-storm disaster-recovery plans.

The organization is using a Windows NT-based extranet to get critical information to both employees and members. For example, MMPA posts the amount and quality of milk received from each farm, making it easy for farmers to track their business with the cooperative. In addition, field representatives can access the network remotely to check e-mail or track changes in the cheese and butter markets, and customers can use the network to contact the sales department. "Our extranet saves us a lot of money," says Schulley, "and it allows us to be responsive in ways we could never have dreamed of a few years ago."



MMPA's Greg Schulley gets critical information to dairy farmers using a Windows NT-based extranet

For farmers that produce millions of pounds of milk per month, fast information access can have a major impact on the bottom line. For example, farmers use the extranet to access results of lab tests that show how changes in feed rations affect milk production. And the sooner they get that data, the faster they can optimize feed expenses.

MMPA runs its extranet on two Unisys ClearPath systems that are partitioned to support both the proprietary Unisys environment and Windows NT. "There's very high-speed connectivity between ClearPath and Windows NT," Schulley notes. "It's easy for us to get to main-frame data from either the Windows NT side or an Internet application."

A major reason Schulley chose to work with Unisys was for its understanding of corporate data. "They've been around the enterprise from the beginning," he says. "Unlike a lot of vendors that started out as PC manufacturers, they understand the criticality of data to companies."

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REDUCING IT COMPLEXITY

gains in momentum and market share at the expense of other platforms.

In fact, Windows NT will become the mission-critical operating system of choice for the future, according to the SOFRES survey. Specifically, the study shows that 73% of organizations are

CONTINUED FROM PAGE 5

implementing or planning mission-critical applications on Windows NT.

For a growing number of organizations, it's becoming clear that Windows NT is a platform equally appropriate for desktop computers, local-area networks, departmental servers and trans-

action-based systems. That means they can standardize on the operating system to reduce the complexity of their IT environments. It also means they can ensure easy sharing of information across the enterprise and, ultimately, realize tangible business benefits from their IT investments.

WINDOWS NT:

ANSWERING ENTERPRISE NEEDS

David Houseman, vice president of Advanced Technology for Unisys, describes the advantages Windows NT offers in simplifying IT environments and how it helps IT organizations contribute to the strategic goals of the enterprise.

Q A major contributor to the complexity of today's IT environment is the proliferation of mixed computing platforms. Weren't standards supposed to help cure all that?

A That certainly was the intention. But I judge the effectiveness of a standard by the degree to which it allows users to take an application and run it on the broadest array of platforms possible. So I wonder how much value emerged from the standards movements of the past decade.

The problem for IT vendors is that standards neutralize their ability to differentiate their offerings—a situation exemplified by the UNIX operating system. UNIX was supposed to be an open platform, but each vendor enhanced and modified it in an effort to differentiate itself. We ended up with so many different flavors of UNIX that organizations weren't much closer to simplifying their IT environments than when proprietary operating systems ruled.

Q How much of a solution does the Windows NT platform offer?

A For Unisys, our customers tend to be larger enterprises where the need to integrate systems serving disparate departments is particularly pressing. We would not have made the level of commitment to Windows NT that we have today if we didn't find it offered substantial strategic advantages to our customers.

The most compelling reason Windows NT is successful in reducing IT complexity is that there is only one version of the operating system. Having focused for much of its history on the desktop, Microsoft entered the enterprise market relatively late. So it had the advantage of witnessing the fragmentation of UNIX. The lesson learned was simple: To maintain a standard platform, you need to



keep the source code under lock and key. No one modifies it except Microsoft. As a result, any Windows NT application will run on any Windows NT platform, period.

Windows NT is also intrinsically a simpler operating system than UNIX for both the user and the administrator.

Q How does Unisys add value to Windows NT, particularly in the area of reducing complexity, to offer clients a compelling reason to invest in the technology?

A A single large system is less complex to manage than distributed systems. We are working to bring the advantages of large mainframes to Windows NT, combining them with the cost advantages associated with the Intel platform.

One way to simplify an IT manager's life is to make the technology reliable. New tools added to commodity Intel and Microsoft platforms improve system availability and simplify system management. Windows NT doesn't currently provide a way of automatically discovering when a system service is no longer responding. So we bundle additional software with our Aquanta ES5000 servers that automatically scans for interruptions, reports them and provides tools to streamline recovery.

In addition, we offer a range of IT services that help bring attributes associated with mainframe computing—including bet-the-business reliability and vaultlike security—to Windows NT. We've been providing these kinds of services for decades, and now we're applying that expertise to the Microsoft operating system.

With the technologies and services we offer, we intend to bring to distributed systems many of the advantages once available only on mainframes. We feel confident that the result will be an IT environment that contributes to the goal of the enterprise.

**It's not that we can't stop working on a client's problem.
It's just that we hate to quit when we're on a roll.**

On Wall Street, momentum is everything. That's why we helped design and run a benchmark study to prove our Microsoft® Windows NT™-based servers can keep The Nasdaq Stock Market going, even in a tidal wave of transactions. One billion shares later, it was still going strong. In fact, we showed it could handle two billion shares traded and scale up to four billion per day. Now, Nasdaq is installing tough, reliable Unisys Aquanta™ servers based on the Intel® Pentium® II Xeon™ processor. Because when the fastest growing stock market in the United States is rolling, nothing better get in the way. www.unisys.com



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ED YOURDON

The right Y2K image

THE FINAL and most difficult part of your year 2000 project is deciding how to convince the public that it can trust your company to achieve Y2K compliance. Banking, air transportation and utilities are just three industries facing such a problem. If the public becomes more jittery about Y2K later this year, the skepticism could spread throughout the economy. Consumers might ask: "Why should I buy

a new car if I can't get a warranty that it's Y2K-compliant? Why not wait until after 2000 to see if the new cars still work?"

Thus far, consumers have been passive; maybe they'll continue to buy new cars without asking for proof of Y2K compliance. Perhaps that explains the prevalent, "minimalist" public-relations approach to year 2000 — which is to say as little as possible and be as vague as possible.

For example, General Motors' Y2K Web page (www.gm.com/about/info/news/y2k/question.html) offers the following comment about its current and past products: "Those few systems that have date-related functionality were found to be Year 2000 ready." (Such a statement may not be a legal guarantee, but it does provide more comfort than I get from Ford, Chrysler, Toyota, Honda and Volkswagen, whose Web sites, so far as I can tell, contain no references to Y2K.)

Car buyers have lots of choices. If a consumer doesn't like the year 2000 story from Company X, he can see whether Company Y has a better story. But there are other industries in which consumers have little choice, such as electric utilities, or are somewhat insulated against Y2K failure (under FDIC guarantees, all bank deposits are insured regardless of the individual bank's Y2K compliance). Perhaps that explains those organizations' tendency to stonewall their customers: After all, if your local electric utility refuses to answer your questions in a detailed and forthright manner, where can you turn for an alternative?

Thus, Y2K project teams should watch the PR efforts being conducted by such highly visible industries as banking, utilities and air transportation because it may provide useful insights about the effectiveness of various communications strategies. For example, the International Air Transport Association recently announced that its \$20 million report on noncom-

pliant airports won't be released to the public until after Jan. 1 because public disclosure would amount to "scaremongering." Similarly, FDIC regulations specifically prohibit U.S. banks from disclosing the results of ongoing Y2K "inspections" (www.fdic.gov/banknews/fils/1998/fil98074.html).

Personally, I find it mind-boggling that I'm denied access to information that may affect my travel plans and the physical and financial security of my family, even when that information has presumably been acquired by the government at taxpayer expense. Perhaps I'm the only one who feels that way.

Perhaps that explains those organizations' tendency to stonewall customers.



If that kind of stonewalling — combined with an aggressive, "positive spin" PR effort — manages to avoid creating a consumer backlash, other industries may feel they can mimic the approach. But if the polls continue to show that a significant minority of individuals plans to withdraw large sums of cash later this year, the banking industry might have to find a different strategy — for example, a no-stone-urned disclosure — to achieve the level of confidence so critical to the stability of the banking system.

Similarly, if advance reservations for airline travel begin to plummet later this year, the airlines may have to disclose unpleasant news about noncompliant airports in some unfortunate countries whether they want to or not.

If those key industries are

forced to change their year 2000

PR approach, there's a good chance your industry may do the same. Prepare for that in advance — because there won't be much time to reassure jittery consumers before they abandon your company's products and services in favor of a more astute competitor. ■

Yourdon heads the year 2000 service at Custer Consortium in Arlington, Mass. Contact him at ed@yourdon.com.

BRIEFS

Top Y2K Spenders

Citigroup Inc. and General Motors Corp. are spending more on year 2000 projects than any other U.S. company, according to Institutional Shareholder Services (ISS), a Reston, Md.-based firm that provides proxy advisory and voting agent services.

Based on your 2000 disclosures made to the Securities and Exchange Commission since Jan. 1, ISS found that nine U.S. companies plan to spend more than \$500 million to prepare for year 2000 problems, led by Citigroup (\$800 million), GM (\$780 million), AIG Corp. (\$640 million) and General Electric Co. (\$575 million). Petroleum companies (30%) and real estate companies (37%) rank among the bottom industries in terms of Y2K budget spent.

NBC.com and VideoCenter's Webmaster.com. The agreement doesn't include MSNBC.com, a joint venture between NBC and Microsoft Corp., the companies said.

Politics Online

The Internet is expected to play a pivotal role in the presidential election next year, according to Intense Corp., a market research firm recently acquired by Barlow Group Inc. in Stamford, Conn. Intense's recent survey of 10,500 U.S. households found that 55% of voters Americans have Internet access. Intense projects that figure will rise to 70% by election day. The Newark, Conn., firm says the most successful candidate will still strike a balance between interactive content and fast download times.

NBC Merges Sites

NBC is to merge several of its Internet assets with News.com and Sun's Soap.com to form NBC Internet (NBCI), a public Internet company, according to a statement from the companies last week. NBCI will consist of several NBC Internet properties including

Just in Time for Star Wars

MediaFirm Inc. last week relaunched its Web site, formerly known as MovieLink, as MovieFirm.com. The company said it offers broader content, such as newsgroups, opinions, and faster downloading.

NEW BOOKS

Tales of Six CIOs

Republishing the IS Organization to Enable Business Transformation, written by Carol V. Brown and V. Sankaranarayanan, will be published this month. In this book, business leaders are discovering that success comes from detecting leading windows of opportunity and quickly responding with winning products and services.

Because IT capabilities are integral to that process, business leaders are positioning their organizations to deliver what's needed.

This book explores how six firms undergoing fundamental business transformations

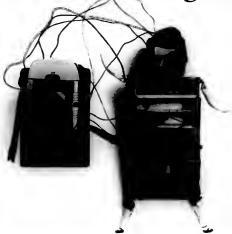
did so. (Pluribus Education Resources, 136 pages, \$89.95.)

Drucker's Latest

In *Management Challenges for the 21st Century*, Peter F. Drucker, the apostle dean of business gurus, argues in part that the failure of corporate information technology and CIOs to provide information is triggering a new information revolution. When that Drucker is covered in several other books, the chapter "Information Technology" is mandatory defensive reading. (HarperBusiness, 224 pages, \$27.50.)

A CRY FOR PRIVACY

As e-commerce grows, businesses must avoid intruding on the lives of customers — or risk losing them **By Deborah Radcliff**



THE ISSUE OF PRIVACY both polarizes and unifies government, cyberactivists, businesses and consumers. "Privacy is something that Americans respond to very emotionally," says industry analyst Jim Bakerson at Zona Research Inc. in Redwood City, Calif.

Businesses have been on a collision course with consumer privacy ever since businesspeople realized the Internet's enormous marketing potential. "You have zero privacy. Get over it," Sun Microsystems Inc. CEO Scott McNealy told a crowd at a product launch earlier this year. That statement set off a firestorm of negative publicity in publications like *Wired* and is frequently derided by cyberactivists.

Such blithe underestimation of consumers' privacy concerns could be costly.

For example, users revolted against Amazon Online Inc. in July 1997 when it declared it would sell customers' names and telephone numbers to telemarketing partners. And the Federal Trade Commission fined the Web-site hosting service

GeoCities for violating its own policy on how it would use its members' personal information.

"Privacy is a very strong consumer concern. Just for their own self-betterment, companies doing business on the Web should address that concern," says Lee Peeler, associate director at the FTC's division of advertising practices.

But businesses and consumer interests need not crash head-on over privacy. In fact, Tara Lemmey, executive director of the San Francisco-based Electronic Frontier Foundation (EFF), predicts businesses that protect their customers' privacy will likely grow a faithful following and blow away their competition.

Put It in Writing

It starts with disclosure, Peeler says. Tell your customers how you're gathering information, what you will do with that information and how consumers can prevent misuse of their information.

More businesses appear to be providing some sort of disclosure. A survey released

last week by Georgetown University Business Professor Mary Culnan (www.msh.edu/faculty/culnan/m/culphome.html) found that nearly 66% of 364 Web sites posted information practice statements. That's a significant improvement from what the Federal Trade Commission reported last year. The FTC said only 14% of 424 Web sites provided any such statement, and only 2% posted a comprehensive privacy policy.

Nonetheless, "There's a big gap between what the average consumer wants done with their information and what the average business wants to do with the information," says John Gilmore, a former mainframe administrator who co-founded the EFF 10 years ago.

One reason for that gap is time-to-market, says Thomas Tucker, president of Key Marketing Services, an Internet marketing and business hosting service in Batavia, NY. "The issues for my company... revolve around what is the quickest, cheapest and safest way to order any product over the Internet," he says.

Recent FTC actions may prompt businesses to take more time to hone their privacy policies.

Peeler says the FTC is embroiled in a handful of Internet privacy cases that he wouldn't discuss. But last year, the FTC filed a deceptive practices complaint against New York-based Internet company GeoCities.

The conflict arose over how GeoCities handled its "optional" form field information (education, income, marital status, occupation and interests), which was not to be released without the member's permission. But the information was shipped to third-party marketers. In addition, the complaint said GeoCities gathered personal information about children without parental consent.

"In the GeoCities case, we were concerned about the collection of information from young children. The second part was that their privacy policy did not coincide with their actions," Peeler says.

In February, GeoCities received FTC approval of its privacy policies after GeoCities agreed to beef up its privacy practices and obtain parental consent before gathering information on children.

"This was a wake-up call in terms of how seriously we must treat privacy matters," says GeoCities spokesman Bruce Zanka, who stresses that no one was harmed in that instance. "We've taken stock of our privacy practices and have our house in very good order. Now we just want to get this whole matter behind us."

Let the Customer Drive

In addition to posting a privacy policy, Internet businesses should also conform to an increasingly popular opt-in policy, contends Mike Starkeburg, CTO at CyberStar Outpost Inc. (www.outpost.com). A Web retailer of computer products in Kent, Conn. Opt-in means that consumers get marketing materials only if they request them.

"We've always had an opt-in policy — an option to say explicitly, 'I want mail,'" he says. "What drove us to being anal about this is that we do a lot of business in Europe and Japan. The European Union rules on privacy are much more stringent than ones in the U.S."

In order for U.S.-based Internet businesses to work with the EU's strict data privacy laws, the U.S. Department of Commerce last month released its own set of privacy rules, according to a report in *The Wall Street Journal*. Those include telling EU citizens how their data will be used, allowing them to opt out of having

their information sold, securing the data collected and giving EU customers access to their own data.

In addition to government intervention, two private-industry organizations have stepped in to help Web businesses with their privacy policies.

Those organizations, TrustE, which was founded in part by the EFF, and BBBOnline, a new offshoot of the better Business Bureau, support the opt-in policy. In fact, both groups have turned privacy into profit by selling products and services designed to protect consumers and add credibility to Internet businesses. Those include:

- Templates to help electronic businesses design privacy statements.
- Certification and auditing services that periodically review the sites for compliance to privacy policies.
- TrustE and BBBOnline logo buttons that customers can click to read a Web site's privacy policy and check the business' status with TrustE and BBBOnline.

Though many hail these services as the best available solution, some online marketers, like Tucker at Key Marketing, feel they're gimmicks to make a site look more credible. "I think a lot of online privacy

Privacy is a very strong consumer concern. Just for their own self-betterment, companies doing business on the Web should address that concern.

LEE PEELER, ASSOCIATE DIRECTOR,
DIVISION OF ADVERTISING PRACTICES, FTC

issues are really mountains being made from molehills. Some people grab them and focus on their own marketing niche," he says.

If a company opts not to use an outside service like BBBOnline or TrustE, it should at least provide a link to its own privacy statements on every Web page, contends Shelley Harms, executive director of public privacy at Bell Atlantic Corp. in New York. But she found it difficult to convince her organization's 40 webmasters to give up space to put a privacy button on every page. So she gave them better training on privacy guidelines. "General employee awareness is also important," Harms says. "You don't just talk to the technologist, you also talk to those in the company who collect information — marketing folks, order clerks, data-entry operators..."

If all employees aren't on the same privacy page, your company could get stung the way America Online did last year in the Timothy McVeigh case. In spite of a corporatewide privacy policy to the contrary, an AOL customer service operator was dazed by a U.S. Navy investigator into telling him that McVeigh owned the online screen name BoySearch. McVeigh, a master chief petty officer, was dismissed from the Navy on charges of homosexuality. Last June, he settled lawsuits against AOL and the Navy.

The biggest problem with privacy policies is their length. AOL's is eight pages, and Bell Atlantic's is

three. What Web-surfing consumer would want to take the time to read that all?

Enter Platform for Privacy Preferences (P3P), developed by the World Wide Web Consortium.

P3P, a privacy protocol which received wide industry support at last month's Computer Freedom and Privacy conference in Washington, translates English language privacy policies into Extensible Markup Language, machine-understandable policies. Joseph Reagle, project analyst at the consortium, anticipates that P3P will start showing up in Web servers and other Web technologies by year's end.

Consumer Controls

Similar to subscribers of BBBOnline and TrustE, Web businesses using the P3P-based technologies will develop their privacy statements with the help of P3P-intelligent templates. Because those templates generate certain keywords and statements common to most privacy policies, they will be readable from consumers' browsers. Consumers will also be able to reconfigure their browsers to release or not release personal information to Web merchants based on whether they accept a site's privacy policy.

"The user's interaction is guided by their privacy preferences, but they don't have to necessarily read the sometimes-confusing privacy practices of every site they visit," Reagle says. "For instance, the pop-up window would say, 'This merchandiser subscribes to BBBOnline or TrustE. Or it could say, 'This site has a questionable privacy practice. Do you want to proceed?'"

Privacy groups including EFF and technology giants like IBM, Microsoft Corp. and Novell Inc. have jumped on the P3P bandwagon. Outpost.com's Starkeburg says P3P is similar in concept to today's parental-control applications.

For more than 10 years, the EFF, which last year operated on \$1.1 million in private donations, has waged an education campaign to bring together business, technology, consumers and government to find common ground on privacy. And it's not alone. Other, newer cyberrights nonprofits such as the Global Internet Library Campaign (www.gilc.org) and the Electronic Privacy Information Center (www.epic.org) are waging similar campaigns. All hope to stave off government privacy regulations. But it may be too late.

Last month, U.S. Sen. Orrin Hatch (R-Utah) warned businesses that some form of Internet privacy legislation "appears inevitable." Two bills have been introduced. One, the Online Privacy Protection Act, would require Web-site privacy policies.

The EFF's Lemley says she hopes Washington doesn't have to jump in. Rather, she'd like to see industry self-regulation combined with government backup in the form of enforcement only when personal freedoms such as privacy are violated. "A good balance could be struck between good business practices and potential [government] backstops for bad actors," she says. ■

Radcliffe is a freelance writer in northern California.

MORE ONLINE

For a look at two Web privacy policies, try the following:

- For Outpost.com: www.outpost.com/1313/privacy.html
- For America Online: <http://legal.web.aol.com/policy/aolpolicy.html>

BATTLE TESTED

Military veterans make great IT leaders. Here's why

BY KATHLEEN MELVINURA

A SUBCONTRACTOR on Pat Shediack's imaging project changed an entry in a database index and crashed the server. "Their database administrator was standing there and had no idea what to do," Shediack recalls. "We were dead in the water."

Shediack didn't know the technology, but he knew he had to do something. So he pulled the plug on the server — literally. Then he plugged it back in. "The damn thing came up and reindexed itself," he laughs.

The difference between Shediack's response and the database administrator's? "To him, not doing anything was an option," Shediack says. "To me, that's not an option."

Shediack developed his can-do attitude during more than 20 years in the U.S. Air Force. He's now a project manager at PeopleServe Inc., a Dublin, Ohio, provider of services to people with mental retardation (pschediack@hotmail.com).

"In the military, you are not allowed to fail," Shediack says. The U.S. military has devel-

oped a secret weapon in the war against the information technology worker shortage: veterans.

More than 200,000 veterans leave the service every year, according to Transition Assistance Online (see box, next page) and nearly all bring with them a familiarity with com-

puters. In fact, more than 40% of them have worked directly in IT as computer operators, programmers, systems analysts, LAN specialists and IT managers.

Veterans also bring a mindset that makes for great IT leadership. "John [Lochow] is an awesome CIO," says Tony Ibarquien, CEO of Tech Data Corp. in Clearwater, Fla. "He

has a very structured methodology and people work well as a team under that structure. There's no confusion and very little politics."

Lochow's early management experience came during two tours of duty with the Air Force as an engineer on a C130 transport plane, including 39 combat missions in Vietnam



are a natural labor pool for IT recruiters — because IT's dynamics are like the military, says Jamie Price, an Army veteran and supervisor of PC support at Browning-Ferris Industries, a trash-management company in Houston. "In the military, you have to be adaptable," he says. "The truck may get in an accident, the best person may take a bullet, but the mission has to go down."

The same goes for IT, says Ken Kantor, an Army Vietnam veteran and director of computer center services at Browning-Ferris. "In the MIS world, you have to get the system working, whatever it takes," he says.

Both the military and IT are failure-prone environments where individuals matter, says Computerworld columnist Paul A. Strassman, a World War II commando and former CIO at Xerox Corp. and Kraft Foods Inc. "The senior fails asleep, and everybody dies," he says. "The person who doesn't label the storage medium wipes out a backup file. You can't fake it."

Why They Succeed

For most veterans in IT, failure isn't an option. "They're like pit bulls," says Andy Bochman, an Air Force veteran who is now director of business development at Abendern Group Inc., a Boston IT consulting firm. "They will follow through to the end."

Veterans know that good decisions require all the available information, and they won't gloss over bad news. Sheddack recalls that when he once believed to tell his company commander some bad news, his superior officer screamed at him: "Are you only going to tell him the good news, or are you going to tell him all the news?" "To this day, I hear that scream in my ear all the time," he says, "and I tell my manager all the news."

The military stresses project management. "They teach you to look past today... toward where you want to be at the end of a project," says Phil McDowell, a 26-year Air Force veteran, now senior project manager at PeopleServe. "And you learn to be assertive and take charge when you need to."

Supervisors notice such leadership. "If I give you a project to manage, I don't have to worry about it," says People-

Serve CIO Randall Bradford, also an Air Force veteran.

The military understands deadlines, says Amy Courter, a patrol commander in the Michigan Wing of the Civil Air Patrol (CAP) and vice president of MIS at Valassis Communications Inc., a marketing services firm in Livonia, Mich. "In CAP, if a [rescue] ground team shows up late, they may find a person expired. That bleeds over into my life here. In the last three years, we completed all but one project on time."

Teamwork is second nature to veterans. "The success of the unit was much more important than the success of the individual. But in the military, that just means all of you will survive, so that creates a certain amount of urgency to do it right," says Andrew Meldrum, a Navy veteran who recently left his position as CIO at United Press International to become chief operating officer at start-up Infrastructure Defense Inc. in Arlington, Va.

When it comes to systems, veterans have a head start in dealing with sophisticated, integrated platforms — like military aircraft, for example. Installing a new computer system into an aircraft is an exercise in planning and integration, Meldrum says. Not only does it have to work; it has to

When you go jumping out of a trench and running toward a machine gun yelling, 'Follow me!' if they don't like you, they're not going to follow you.

JOHN LECROW, CIO,
TECH DATA CORP.,
CLIAWATER, FLA.

fly. "You think about impacts on other systems, logistics, support, testing, training and the next upgrade before you ever put it in, or you pay the price," he says.

That facility for planning is invaluable in business, says James Adams, CEO of Infrastructure Defense. "I can go to Andy and say, 'I have this great idea,' and he'll come back the next day and have figured out how to do it."

Leadership

The military is all about leadership, and responsibility comes early and often. In his early 20s, Bradford, led a missile wing with 200 intercontinental ballistic missiles carrying 650 warheads.

And there's more to military leadership than just giving orders. "When you go jumping up out of a trench and running toward a machine gun yelling, 'Follow me!' if they don't like you, they're not going to follow you, and they shoot you in the back," Lecrow says. "You have to develop leadership skills to get people to do things they don't want to do."

You also learn to promote good people quickly. "In the military, they want people to move along quickly because they don't have them for that much time," Lecrow says. "I always move people's careers along."

People who work with veter-

ans say they're just what IT needs. "They have a history of discipline and structure and training and process, and a mind-set of creativity and initiative, and that's a wonderful combination you rarely find in the business world," Adams says.

"We have had very good success hiring veterans in our MIS department," says Todd Hartley, human resources manager at PeopleServe. "They bring with them more discipline and a sense of the 'bigger picture' due to their military experience. They are very team-oriented and take direction extremely well, and that has rubbed off on our nonmilitary employees in the department. I certainly wouldn't hesitate to hire other IT professionals from the armed services."

Even so, veterans say many companies seem to harbor a bias against them, based largely on outdated stereotypes. "They may think that all military officers are George Patton, but what about Colin Powell?" says Alan Rogers, a retired two-star Air Force general who is now vice president and programming manager at American Management Systems Inc. in Fairfax, Va. "We're really a whole range of different kinds of people."

Of course, that includes some who may not succeed in business. In fact, sometimes veterans' strengths can hurt them. For example, facing with a bad strategy, they focus on the mission isn't really a benefit because they may be less likely to raise objections when they should, Bochman says.

And even veterans' strongest advocates say corporate culture, with its entrepreneurial, short-term, transaction-oriented, revenue-driven focus presents adjustment challenges. "It's a hard transition," Rogers says. "You have to really want to be a part of a new culture."

But many veterans do. "Everyone complains about not having any IT people to hire," Sheddack says. "I know of [veterans] who would love to get into our business. They just need that entry-level job." ▀

Melymuka is Computerworld's senior editor, management. You can contact her at kmelymuka@melymuka.computerworld.com.

Hire a Veteran?

These organizations can help you find veterans for your IT job vacancies.

High Quality, Chicago

A company founded by veterans that provides career services to veterans. (800) 414-4733
www.hire-quality.com

Transition Assistance Online, Washington: Sponsored by Army Veterans Publishing Co. and others to provide job assistance for transitioning service members and veterans. (800) 424-9235, ext. 8908 (via Army Times)
www.taonline.com

Career Development Corp., Alexandria, Va.: Specialists in placement of your military officers. (800) 336-9000
www.CDC-VA.com

Defense Outplacement Referral System: A U.S. Department of Defense project to link employees with military veterans.
www.dmdc.and.mil/ot

and Cambodia. What he learned was how to work with people. "I've had so much interaction with so much diversity that I can understand people and adapt my approach to each person," he says. "You just don't get that training anywhere else."

IT is a natural destination for veterans — and veterans

ANNE MCCRORY/JARGON JUDGE

An 'ecosystem' of vendors? Spare me

STOP THE PRESS! The relationship among your vendors is not an ecosystem. Given that the word crossed my desk twice in one week, I knew I had to issue an immediate edict: Don't go there! It sounds like an apt metaphor: a community of beings that feed off one another in a self-sustaining kind of way, just as insects, plants and mammals coexist in the forest or snails, barnacles and algae occupy a tidal pool. But the devil's in

the details. Explicit in the Merriam Webster Collegiate Dictionary's definition — "the complex of a community of organisms and its environment functioning as an ecological unit" — is that reference to liv-

ing, reproducing things.

In business, instead, as we regional companies as entities rather than people, that essence clearly is missing. IT, for the most part, is inorganic. There's nothing ecological about it.

Yet some companies are drawing the analogy between how they work together and what other living things do naturally to survive. Cisco Systems is touting a new offering that "creates an emerging

ecosystem of software application vendors, application service providers, systems inte-

grators and technology partners" to bring customers applications over the Internet. PeopleSoft is enticing editors to come to an event to meet its "ecosystem" of business partners.

It sounds so coordinated, so resilient, so scientifically sound. Yet when partnerships are new, how can they be so trusted? Do they really rely on one another for sustenance, without which they would perish? And consider, if you will, the way vendors often work. Their predatory nature

doesn't seem predisposed to the intimacy of an ecosystem.

Of course, in business as in nature, only the fittest survive. There are the hunters and the hunted. There are freak acts of nature that upset the balance and force "communities" to start again. In those ways, there are some parallels between a biologically based township and the feeding frenzy that ingests greenbacks with the hope of growing more.

But let's not pretend we can duplicate Mother Nature. I don't think She would like it. ■



Does any high tech jargon leave you stumped? Or annoyed? Tell Anne McCrory, former Computerworld copy desk chief and now assistant business editor. Contact her at anne.mccrory@computerworld.com.

CONFERENCES

TECHNICALS - THE INDUSTRY'S FORUM

Technology Meets Language, Knowledge and Speech
• World Trade Center, Boston; June 8-9.

• Insights into how to integrate speech, video and language technologies into current and future tools.
• Cost: \$895. Contact: John Morabito, registration manager at Miller Freeman Group, (800) 829-3878, Ext. 2382 or (212) 845-2982; e-mail: jmorabito@mlf.com. www.techtalks.com

EBUSINESS CONFERENCE AND EXPO

• San Jose Convention Center; June 9-10.
• Learn the technologies and strategies behind using the Internet to grow your business.
• Cost: \$1,095 to \$1,295. Contact: CMP Business Forum, (800) 862-2576. www.ebusinessexpo.com

THE FUTURE OF COMPUTING AND NETWORKING (C2TH CAMP EXPO)

• Renaissance Convention Center, Bethesda, MD; June 9.
• All day get-together for IT decision makers to the Internet.
• Cost: Free for IT professionals.
• Contact: CMP Conference Inc., (847) 299-8892; fax: (847) 299-1867; e-mail: allianth@cmp.conferences.com

<http://compconferences.com>

WOMEN IN TECHNOLOGY INTERNATIONAL: 1998 TECHNOLOGY SUMMIT

• Santa Clara (Calif.) Convention Center; June 9-11.
• A key event for women in IT. Topics cover technology and IT strategies as well as professional development sessions geared to women.
• Cost: \$895. Contact: Women in Technology International, (800) 254-9484; fax: (909) 900-3298. www.witi.org/conferences

THE FOURTH ANNUAL LEADERSHIP DEVELOPMENT CONFERENCE

• Fairmont Hotel, San Francisco; June 15-16.
• Leadership development techniques and strategies from organizations and experts on leadership.
• Cost: \$1,095. Contact: Linkage Inc., (781) 862-3657; fax: (781) 862-2895. www.linkageinc.com

REALIZING THE CIO DREAM: IT'S NOW OR NEVER

• Hotel del Coronado, Coronado, Calif.; June 14-15.
• CIOs can learn how to enhance their credibility and increase their business' understanding of their dependency on information. Hosted by Meta Group Inc.'s Executive Director services.
• Cost: \$1,495 for non-Meta

clients; Contact: Meta Group, (800) 945-6362 or (203) 973-6700. www.metagroup.com

IS FINANCIAL MANAGEMENT CONFERENCE

• Disney's Grand Floridian Beach Resort, Orlando; July 6-8.
• A comprehensive look at how to successfully manage an IT organization.
• Cost: \$895 to \$995 until June 4; \$1,095 to \$1,295 after. Contact: IS Financial Management Association, (405) 739-5706; fax: (405) 739-0408. www.isfma.com

THE ENTERPRISE ARCHITECTURES CONFERENCE

• Hyatt Convention Center, Boston; June 15-17.
• Co-sponsored by Meta Group and Digital Consulting Inc. (DCI), the conference focuses on what's driving the need for an adaptive enterprise architecture and how you can push its value to the business.
• Cost: \$1,195 to \$1,895. Contact: DCI, (878) 470-3886; fax: (878) 470-6506; e-mail: Conf@dcil.com. www.dci.com/eaec

OSCA WORLD IT FORUM 1999

• Phoenix Hotel, Scottsdale, Ariz.; June 14-17.
• High Information Group Inc.'s key conference of the year. All of the firm's analysts will be on hand, covering all aspects of IT management.
• Cost: \$1,250 to \$1,795. Contact: Mary Jane Adams at High Information, (714) 790-3892; fax: (714) 671-6877; e-mail: conf@highinfo.com

www.gigaweb.com

JANOME

• Moscone Center, San Francisco; June 15-16.
• Learn the latest on Java technology at Sun Microsystems Inc.'s worldwide Java developer conference.
• Cost: \$1,495 to \$2,395. Contact: Janome, (888) 886-8766; fax: (714) 449-2674. <http://java.sun.com/javacore>

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• Sheraton Hotel & Towers,

Chicago; June 29-29.
• Project management from soup to nuts, featuring sessions on risk management and IT retention.
• Cost: \$1,095 to \$1,395. Contact: ABI Corp., (800) 477-0532; fax: (800) 444-6726. www.abicorp.com

PC EXPO

• Javits Convention Center, New York; June 22-24.
• A major showcase for today's business technology.
• Cost: \$795 to \$1,095. Contact: Miller Freeman Group, (800) 829-3678, Ext. 2382 or (212) 845-2982. www.pcexpo.com

WEB SITE

• www.y2kspcologist.com
• With 229 days until the millennium rollover, information on the year 2000 problem is flowing very quickly. This site provides you with up-to-date Y2K news, plus information on building it at work and home. Click on "Power Y2K" and find information pertinent to your industry. Want to engage in an online debate? Click on "Inch vs. Myn" and express your opinion on how the year 2000 problem will shake out. — Rick Sals



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Out with IT?

Is your IT department a core competence or a core incompetence?

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How TWA used outsourcing to solve its IT staffing crunch.

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SMARTsourcing Solutions Guide

The official publication of BrainStorm Group's SMARTsourcing Conference Series. This quarterly publication features insightful articles:

- Hear from TWA's Acting CIO, Guy Myers on the benefits TWA has attained through the strategic implementation of SMARTsourcing. **Page S-7**
- Ian S. Hayes, President of Clarity Consulting and SMARTsourcing Co-Chairman addresses the increased importance that outsourcing will play in IT organizations of the future in his lead article "Is IT Really A Core Competence Of Your Company?" **Page S-3**
- "Challenge Your Outsourcing Vendors" by William M. Ulrich, President of Tactical Strategy Group and SMARTsourcing Co-Chairman, identifies additional tips for leveraging your relationships with current strategic partners. **Page S-13**
- Hurwitz Group's Bill Martorelli, Vice President of Application Research Strategies, discusses the emergence of services and solutions surrounding E-Business in "E-Business Services." **Page S-14**
- Cigo Information Group's Julie Glara, Research Director, provides insight on selecting the right strategic partner for your organization in "An Insider's View on Outsourcing." **Page S-10**

Special Thanks

The SMARTsourcing Conference Series has become a reality thanks to the support of our event, media and analyst co-sponsors, which you will find profiled and recognized throughout this Solution Guide. Additional thanks goes to our presenters and Executive Advisory Board members (see page S-9) whose expertise and insight has been integral in establishing the SMARTsourcing Conference Series as a must-attend forum for IT Outsourcing practitioners.

Come join us in San Francisco for some BrainStorming!

About BrainStorm Group

Based in Northboro, Massachusetts, BrainStorm Group, Inc. was founded in 1997 by Gregg V. Rock with the intent of establishing itself as the premier producer and developer of high technology conferences and events. In addition to the SMARTsourcing Conference & Expo Series and the YEAR 2000 National Symposium Series, BrainStorm Group offers a set of integrated services in the areas of proprietary conference development and the outsourcing of content development, sales, event management and management for the high technology marketplace.

Previous SMARTsourcing attendees include:

- AT&T
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- Blue Cross/Blue Shield
- Discover Financial Services
- Coca-Cola
- Walt Disney
- Frito Lay
- Entergy
- Kraft Foods
- Chase Bank
- Glaxo-Wellcome
- U.S. Coast Guard
- TWA

Ian Hayes of Clarity Consulting asks:

IS IT REALLY A CORE COMPETENCE OF YOUR COMPANY?

Let's face it, we can't be perfect in everything. Everyone has tasks they excel in and tasks that may be best performed by someone else.

Often the hallmark of a super-achiever, whether in sports, the arts or business, is a single-minded focus on obtaining excellence in a sole discipline. This principle is the foundation of the term "core competence."

A core competence is a particular discipline, function or operation where a company excels. Today there are countless business books and articles exhorting executives to concentrate on their company's core competencies, rather than trying to excel in all functions, operations and markets. To survive and thrive in our global economy, every company must have some core competencies. The question is whether information technology (IT) is one of them.

No one can dispute that excellence in IT is a fundamental requirement in today's highly technological and networked world. It is equally clear that many companies are less than expert in all aspects of their IT performance. One has only to look at the current Year 2000 crisis for evidence that IT is not a core competence for most companies.

The typical corporate CEO has been forced to spend large sums of money, defer critical strategic initiatives, accept legal responsibility and endure endless inquiries from investors, analysts, customers and the SEC over concerns about their company's preparedness. All of this disruption and frustration due to a problem that has existed since the dawn of the computer age, a problem that the CEO's IT organization was slow to recognize and address. To the CEO, IT was always a backroom operation that, despite business area complaints, seemed to function adequately. Suddenly the CEO discovered:

- The IT organization couldn't accurately identify their inventory of applications, packages, hardware and network components without performing a costly

analysis to track down the missing pieces.

- Despite early assurances that the problem was limited to old mainframe systems that would be

eliminated well before the end of the century, the problem pervades even the newest systems. Worse, few of the old systems will actually be replaced in time.

- Much valuable time was lost due to false starts, poor project management and IT

managers falling for questionable "silver bullet" approaches.

- The IT organization's processes, such as configuration management and testing, were formally inadequate for even normal operations. (Imagine the CEO's reaction

when he or she realizes that this weakness means that the IT organization may not have ever performed adequate testing.)

- Armies of consultants and outside specialists were required to save the day.

(Continued on page 5)

SMARTsourcing Co-Sponsor Profiles

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Insurance and Managed Care assesses current technologies, determines long-range needs and tailors solutions for insurance and managed care companies.

Internet Services designs, manages and rapidly implements profitable Web strategies, infrastructures and software solutions.

Software Evaluation and Implementation Strategies helps companies evaluate and select software packages, including ERP and supply chain management.

Sales & Field Force Automation helps companies select, plan and implement technology solutions to achieve sales goals.

Software and Infrastructure Testing helps mitigate risks and potential costs of software catastrophes by identifying problems before systems go live.

SUMMIT-D[®], PricewaterhouseCoopers' proprietary systems development methodology, provides in-depth delivery guidance and minimizes project risks.

PricewaterhouseCoopers, the world's largest professional services organization, helps its clients build value, manage risk and improve their performance.

Drawing on the talents of more than 150,000 people in 150 countries, PricewaterhouseCoopers provides a full range of business advisory services to leading global, national and local companies and public institutions. These services include audit, accounting and tax advice; management, information technology and human resource consulting; financial advisory services, including mergers and acquisitions, business recovery, project finance, and litigation support; business process outsourcing services; and legal services through a global network of affiliated law firms.

PEOPLE'SOFT

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About PeopleSoft

Founded in 1987, headquartered in Pleasanton, California, 53 offices in 14 countries. Worldwide provider of enterprise software solutions for accounting, materials management, distribution, supply chain management, manufacturing and human resources.

Industry-specific solutions for financial services, healthcare, higher education, manufacturing, public sector, retail, service industries, U.S. federal government, communications, transportation, and utilities.

Why Outsource?

Globalization of markets. In a global, increasingly networked economy, markets are constantly in flux, customers are more demanding, and new competitors can literally appear from anywhere overnight. Establishing world-class standards often entails huge capital outlays.

Deregulation and new competition. As business models shift, organizations will need to shift their business strategies to reduce the costs of their operations and determine how to better utilize both their capital and human assets.

Technology costs and complexity. As technology grows more complex, so do many of the costs associated with it. Many companies want to benefit from enterprise application software yet cannot afford to maintain the resources internally. Compounding their difficulty is the current shortage of qualified IT expertise.

World-class operations demand specialists. Companies' business strategies demand more flexibility and speed from their IT divisions than these divisions can deliver on their own. Access to specialists can bridge the gap and help companies meet world-class standards and employ best practices.

The move to e-business. Similar to Y2K in its immediacy, e-business has many companies still struggling to formulate a cohesive internet strategy.

Benefits of Outsourcing

Outsourcing enables customers to focus their energies and resources on adding value to their organizations. The traditional emphasis on short-term cost-cutting is being replaced by more strategic considerations like minimizing risk, improving productivity, improving customer and employee service, and accessing new business skills and technologies. Increasingly, organizations are recognizing a long-term value in outsourcing as an effectiveness tool.

The PeopleSoft Solution

PeopleSoft understands that not all organizations want to invest substantial resources to acquire the talent, knowledge, and skills needed to deliver all types of services internally. PeopleSoft, in conjunction with our Certified Outsourcing Partners, provides a variety of outsourcing solutions.

SMARTsourcing
 CONFERENCE & EXPO SERIES

AN EXECUTIVE OVERVIEW BY KEANE, INC.

Improving the Performance of Application Portfolios

K Competitive pressures are creating the increased demand for improved service levels, shorter cycle times, and reduced costs from IT organizations. A critical challenge facing CIOs is how to manage a high-performance IT organization while focusing on strategic direction. Increasingly, companies are leveraging application outsourcing as a means to build a high-performance IT organization and free the CIO to focus on the needs of the business. This overview to Keane's CMM White Paper highlights the advantages of improving application management processes and demonstrates how outsourcing can compress the time needed to build a high-performance IT organization.

The CMM Improvement Process



Keane focuses on improving application management processes to CMM Level 3, thereby helping clients drive defects out of systems, shrink support costs and, most importantly, build high-performance IT organizations that better support the business.

Today, nearly every core business process is supported by Information Technology, and each year, IT portfolios continue to grow larger and more difficult to manage. The problem is, these software application environments often lack the standards, processes and metrics needed to optimally support the business.

This situation has a direct impact on a company's performance:

- Cycle times to new functionality are prolonged.
- The cost of systems enhancements and support is needlessly high, and
- Progress on strategic initiatives is continually thwarted.

One increasingly common business practice used to address this challenge is outsourcing. By bringing in a service provider to manage its applications, companies can re-focus efforts on activities that support their core business strategies. At the same time, their outsourcer can implement operational improvements and world-class IT processes that lead to improved performance, reduced costs, greater predictability, more efficient application maintenance, and enhanced customer/user satisfaction.

Managing Technology Improvements through the SEI CMM

As companies focus on improving processes throughout the IT organization, the question becomes, "How can we be assured outsourcing is making us more effective?"

The answer may lie, in part, in the Capability Maturity Model (CMM), established by the Software Engineering Institute (SEI) at Carnegie Mellon University, which is rapidly becoming the de facto industry standard for measuring the effectiveness of IT organizations, particularly their software development and maintenance processes. Companies are using this model to assess the quality of existing processes against the CMM's five process maturity levels and determine the steps needed to improve these processes. Each CMM level outlines practices to be adopted and goals to be met before advancing to greater process maturity.

Achieving Quantifiable Business Benefits

Keane views CMM-aligned outsourcing programs as a means for realizing significant, quantifiable business value. By improving the processes of application management (i.e., maintenance, enhancements and user support) to Level 3 standards, organizations can shrink the costs associated with legacy applications. This is accomplished by driving defects out of systems and weaknesses out of processes. The key business benefit is the attainment of software applications that better support the business.

Move Up the CMM Faster

On the CMM scale, most IT organizations are currently at Level 1—far from the process maturity status required for today's competitive business environment. To advance from the lower end of the CMM, IT organizations need massive effort, organizational commitment and cultural change. One proven strategy for accelerating CMM advancement is application outsourcing. A leading outsourcer can assist in the following ways:

- Establish an advanced process model
- Introduce metrics, management controls, and a methodology
- Create a continuous improvement environment
- Help overcome cultural barriers

The Bottom Line

In a world of information-based competition, companies must build high-performance IT organizations that are responsive to the business. Outsourcing is the fastest and most effective way to accomplish this objective. The SEI CMM, which provides a roadmap of clearly defined process improvements for achieving higher performance, allows companies to objectively benchmark their IT organizations and outsourcers.

Keane at the SMARTsourcing Conference in San Francisco

How fast can you move up the CMM and what kind of difference will doing so make in your organization?

Keane's Tim Barry, Application Outsourcing Practice Director, will discuss these and other CMM-related topics at the San Francisco SMARTsourcing Conference on June 28. His talk will canvass the competitive advantages of CMM-aligned outsourcing programs and how Keane's solution has enabled clients to earn CMM Level 3 certification within 12 months, as opposed to the industry average of approximately 3.5 years.

For a white paper on how you can align your outsourcing program with the CMM, call 1-800-324-9019.

IS IT REALLY A CORE COMPETENCE. • • (Continued from page 3)

And this is the organization that the CEO is relying on to bring the company into the 21st century! No wonder so many CEOs are questioning whether IT is a core competence. No wonder most analysts expect a massive increase in outsourcing once the century transition is finally completed.

Does this mean the end of IT as we know it? Not necessarily. But CIOs will face many challenges in rebuilding confidence in their organizations in the post Y2K world. They will have large backlogs of deferred and delayed projects and increased inventories of applications and technologies that have become obsolete while IT focused on Y2K work.

The technology environment has grown so complex that only the largest and most profitable companies can afford to maintain the skills and staffing they need to cover all aspects of their technology requirements. The IT processes of the past are no longer adequate to support this world, and the new processes must be robust enough to survive the increased level of legal and executive scrutiny now turned to IT issues.

Core Competence Focus

Long-term success requires a focus on core competence within IT. The post-Y2K CIO must recognize which areas are truly competencies and which are best performed elsewhere. An objective viewpoint is required: IT often makes the mistake of sourcing older areas where they actually excel, while keeping newer, more attractive areas where they lack the skills to succeed. Should the organization really invest the time and effort in developing functionality and skills that are easily available elsewhere?

The IT organization's strongest skills become the initial building blocks to create a functionally "best of breed" IT organization. The remaining blocks are added by selectively sourcing areas outside the IT organization's core competencies to external partners specializing in those areas.

The market is filled with prospective partners capable of fulfilling virtually any need, from pre-packaged software to development and support services. The trick is to select partners whose own core competencies

mesh well with those of the IT organization. The completed collection of building blocks will likely consist of several partners, each contributing their core competencies to the final solution. The sum of these blocks should be an IT organization

that is a corporate core competence. The CIO's role then becomes one of managing and optimizing this mix of competencies to match the corporation's evolving strategies and requirements. This approach is the essence of smart sourcing. ■



Founder and President of Clarity Consulting, Inc., Ian Hayes specializes in strategic consulting on issues surrounding the management and support of corporate business systems. He has advised hundreds of companies on a variety of IT issues including insourcing, outsourcing and process improvement. He has co-authored two books on the Y2K software crisis. He can be reached at san_hayes@compuserve.com.

SMARTsourcing Co-Sponsor Profiles



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Keane, Inc. is a \$1 billion IT services firm helping clients plan, build and manage application software to achieve business advantage. Its company's core services encompass operations improvement consulting, custom application development, e-solutions®, customer relationship management, data warehousing, and application outsourcing. These services are delivered through enterprise-wide practices supporting a network of more than 50 branch offices in North America and the United Kingdom.

Keane's Application Outsourcing Solution

The company's Application Outsourcing solution, under which it assumes full accountability for ongoing maintenance, support, and enhancement of production systems, provides a powerful response to the business challenge of managing application portfolios.

At the foundation of Keane's Application Outsourcing solution is its world-class methodology, which is aligned with the standards and key processes delineated in the Software Engineering Institute's Capability Maturity Model (the CMM). Keane focuses on improving application management processes to CMM Level 3 standards, thereby helping clients drive defects out of systems, shrink support costs and, most importantly, build high-performance IT organizations that better support the business.

Keane's approach introduces and establishes a structured business process model for managing application portfolios according to guaranteed service level agreements at a fixed price. This process model enables clients to:

- Streamline maintenance and support operations
- Implement process improvement procedures
- Institute standards, project management disciplines and appropriate metrics
- Measure and improve performance in work volume, quality, cost, cycle times and customer satisfaction.

The Benefits

Keane's Application Outsourcing solution is enabling clients to manage their application portfolios as a critical business asset. Key benefits clients are experiencing include the following:

- Tighter control of IT maintenance and support operations, enabling focus on big-picture IT issues
- Reduced costs associated with application management, contributing to improved bottom-line performance
- Improved user satisfaction based on targeted improvements in service as well as software quality
- Increased availability of key resources to focus on new development initiatives
- Support for newly deployed applications, enabling quicker return on investment.



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It's About Trust

As one of the fastest growing consulting firms in the industry, RCG Information Technology understands change. RCG has successfully partnered with Fortune 1000 companies to deliver mission critical applications and systems for over 27 years. Our clients trust that we will deliver the highest level of information technology and business operations services. In today's marketplace, where speed is the constant driver of both business and technology enablers, you need a trusting partnership more than ever.

Outsourcing Vision

As business models are constantly evolving, focus and precision become mandatory characteristics of a successful enterprise. Companies can no longer count on long-term competitive advantages. Outsourcing certain elements of your enterprise will allow your organization to focus on the mission critical elements that deliver your differentiation in the marketplace. RCG IT has been partnering with clients to solve outsourcing engagements of application development, maintenance, business processes, and call centers with the help of 3000 consultants in 26 offices in the United States, and key cities in Europe, Asia, and Africa.

Outsourcing Objectives

Improved service means exceeding our clients' expectations with a full range of services to help them stay on the leading edge of business and technology. With expertise in Oracle, and our partnerships with SAP, PeopleSoft, and JD Edwards, RCG IT is positioned to build innovative outsourcing solutions that further develop the necessary trust.

Strategic Planning allows our clients to effectively pilot the ship. RCG acts as the navigator, helping to guide RCG's outsourcing offerings deliver enterprise application benefits, technical expertise, and cost predictability. Engaging our Business/Operations Analyst group further supports our client's ability to manage change and maintain continuous improvement.

Quickly reacting to business change has become the necessary profile of successfully enabled organizations. Trusting RCG as your outsourcing partner enables your enterprise to react quickly, knowing the RCG IT will be supporting your direction. With our E-Business and Knowledge Management expertise, RCG IT will deliver your internal expertise to the marketplace quickly and decisively.

As you move forward to build your high-performance enabled IT enterprise, you need an outsourcing partner you can trust to help you navigate through an ever quickening competitive marketplace. To see how RCG embodies trust, let's build your solution today.

Dr. Gwyn Myers, Acting CIO for Trans World Airlines (TWA)

SMARTSOURCING IN ACTION

Dr. Gwyn Myers is acting CIO of Trans World Airlines (TWA), where he heads up an IT department of approximately 400 employees located in Kansas City, Mo. In January, TWA outsourced its IT recruitment process to Computer Horizons Corp. Since then, CHC specialists have performed the IT staffing function. Another element that CHC brings to the recruitment process is its Computer Horizons Information Management Efficiency System (CHIMES), a customized, web-enabled decision-making system.

Dr. Myers was interviewed by Deborah Melnick, a freelance writer who specializes in the high-tech field.

Q: What are the advantages of a web-enabled decision-making system?

A: It's paperless, and you can measure anything you need to measure, you can see where you have backlogs in the system. We can see if our

percentage of hires to interviews is in line. We can see the numbers of interviews coming out of resumes sent by each vendor. We can also follow through and track the stay rate, so if somebody comes in and six months later they're gone,

we can find if there's a pattern where it's the manager or the vendor, and work on that.

Q: What pitfalls exist in outsourcing a process like this?

A: CHC has to learn the internal processes of TWA, and TWA has to learn the processes

of CHC. CHC has had to learn about TWA's paper flow. And the system is paperless, but even though we all talk about having a paperless system, when we actually have one, we don't quite know what to do with it, it's such a different process.

SMARTSOURCING Co-Sponsor Profiles



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Computer Horizons Corp. is a strategic IT services supplier with over 4,000 billable consultants and 55 offices worldwide. The company enables its Global 1000 customer base to realize competitive advantages through enterprise application solutions, e-business, customized Web development and Web enablement of strategic application portfolios. Specific offerings include Customer Relationship Management (CRM), e-business, network services, ERP, strategic outsourcing and managed resourcing, as well as a best-of-breed selection of software and relational database products.

Computer Horizons offers an integrated "Market Leadership" approach to transforming its clients into the modern e-business world. The approach combines our various talents of our Strategic Emerging Practices organization, i.e., CRM, e-Business, ERP, Outsourcing, and Managed Resourcing. CHC solutions are designed with combined synergy to provide total integrated solutions that enable clients to gain competitive and operating advantage.

CHC's Integrated framework approach sponsors a full life cycle methodology with multiple entry/exit points, reflecting our commitment to respond to the needs of our clients. The solution offerings uniquely combine best-in-class products, proven processes, and tested project management practices supported by skilled technical resources providing a full range of consulting services that covers: Strategy, Architecture, Engineering and Design, Implementation and Operations.

With the understanding of information technology and the contemporary information management system, Computer Horizons has built a very strong set of service offerings, designed to meet the needs of large business organizations, now and into the future. These offerings have been successfully marketed to the world's largest financial institution, the world's largest insurance company and the world's largest telecommunications service provider.

Businesses around the world are facing more obstacles than ever before. To succeed in this new business climate, companies should bolster their strengths, and focus resources on core competencies to ensure increased shareholder value. Conversely, companies should entrust decentralized and mission critical operations—such as information technology—to business partners with the expertise and experience to upgrade and maintain functions into the future.

As one of the country's foremost diversified information technology companies, Computer Horizons, led by a management team dedicated to client-driven objectives, has been serving as that kind of business partner both devising solutions and implementing them since 1969.

Hexaware Technologies, Inc. is a leading developer and implementer of business application solutions for mainframes, client/server, AS/400 and other midrange systems. Global services include:

- Euro conversions
- ERP implementations and support, with special expertise in PeopleSoft Financials, Human Resources and Student Administration modules.
- Application outsourcing
- e-consulting services
- e-commerce solutions
- Y2K conversions, remediation, Independent Verification & Validation (IV & V) techniques and business contingency planning.

Hexaware helps move legacy systems into the future. Our expertise with mainframes, client/server, AS/400 or other midrange systems allows us to develop solutions that continue the relevance of those legacy systems. We offer a large pool of certified programmers, developers, engineers, skilled project managers and technical consultants, all of whom are skilled in legacy and evolving platforms, tool sets and languages. Depending upon the size of the project, our project teams can be comprised of on-site Project Manager(s) and a team of functional consultants who assist IT departments in achieving their corporate strategic initiatives. In addition, teams can also include off-site and off-shore functional and technical consultants.

Our SatNet™ Competency Centers are linked by satellite to our US offices. The facilities are ISO 9001 certified, and a dedicated quality team is working toward SB CMM Quality Level 4 by the end of 1999. The time difference provides our teams with a virtual 24-hour work cycle, which offers customers a shorter time to market, and a significant cost savings. In some instances, we have dedicated SatNet Competency Centers for particular clients who have outsourced the maintenance of their applications to Hexaware. This operating model allows customers to reduce their costs, maintain critical systems, and provides a continuity of technical resources during this time of constrained resource availability.

We support clients in brokerage, banking, insurance, transportation, and higher education. Hexaware has its North American corporate headquarters in Princeton, New Jersey, and has regional sales offices in Chicago, Illinois, Pleasanton, California, and Toronto and Montreal, Canada. For additional information, check out our web site at <http://www.hexaware.com>, or call 1-877-IT-LEGACY.

Q: What led TWA to outsource this part of its operations?

A: We just couldn't handle our tremendous hiring needs internally. The IS area is a very hot field right now, and with the number of people we needed to hire, we couldn't do it all internally with just one recruiter.

Q: Does CHC oversee the recruitment process end-to-end?

A: They act as staff members in IS, they have offices and they really are our on-site recruiting department. They take over the process from the beginning, once a requisition is approved. They arrange all the interviews, and when the person comes on, they go through the orientation with them.

Q: What financial benefits does TWA expect to realize from its partnership with CHC?

A: CHC deals with the vendors (head hunters) to make sure that our rates with them are consistent and the most economical we can get.

Q: What was your criteria in choosing CHC?

A: There aren't too many people who do this. We found one of the strong selling points for CHC is their willingness to vary their staffing levels. For example, we had such a crunch here in Kansas City that they added another person. Now they have three people here. They added two recruits in Chicago to help with the staffing of a new facility.

Q: Can you summarize what the CHIMES system is?

A: CHIMES is a paperless system developed by CHC that is ISO-9000 certified. It not only fulfills all EEOC requirements, but it ensures fairness because all the requirements go out to all the vendors at the same time. It also tracks and time-stamps everything: when a resume comes in, whether it is rejected or sent along to the hiring manager, when interviews are held, and when people are hired or rejected.

SMARTsourcing
 CONFERENCE & EXPO SERIES

San Francisco Conference-at-a-Glance

Day 1 June 28, 1999

- 8:25-8:45 am **Opening Remarks & Welcome**
Gregg V. Rock, President & Founder
BrainStorm Group, Inc.
- 8:45-9:30 **Introduction and Defining SMARTsourcing**
Ian S. Hayes, Conference Co-Chairman and President
Clarity Consulting, Inc.
- 9:30-10:15 **Morning Keynote: Transforming the Organization through SMARTsourcing**
Michael F. Corbett, President
Michael F. Corbett & Associates
- 10:30-11:30 **Feature Case Study: Gaining Business Advantage Through SMARTsourcing**
- 11:30-12:45 **Executive Luncheon sponsored by Keane**
- 12:45-1:45 **Managing Partner Relationships**
Peter Bender Samuel, Editor, InfoSource and
President, Everest Group
- 1:45-2:30 **Launching a Successful Smartsourcing Engagement**
Ian S. Hayes, Conference Co-Chairman and President,
Clarity Consulting, Inc.
- 2:45-3:30 **Challenging Your Outsourcer**
William Ulrich, Conference Co-Chairman and President,
Tactical Strategy Group, Inc.
- 3:30-4:30 **CIO Roundtable**
Bruce Caldwell, Editor, IT Services, Information Week
- 4:30-6:00 pm **Evening Reception and Solutions Showcase**

SMARTsourcing Bootcamp

2:00-5:00 pm • Sunday, June 27

The SMARTsourcing Bootcamp is an interactive workshop based on a case study of an organization considering outsourcing.

Technology & Business Integrator's Gary Venner, Director of Consulting Services, with two senior Practice Managers, will provide methodology for the process of deciding whether to outsource, and how to proceed once the outsourcing decision is made. Attendees are typically broken into groups, each dealing with a major facet of the outsourcing decision.

Participants will also benefit from the insights of experienced consultants, supplemented by research from the TSI/IDC/CIO Magazine landmark study on the largest outsourcing deals consummated over the past 10 years.

Produced by BrainStorm Group and Technology & Business Integrators

Day 2 June 29, 1999

- 7:30-8:15 am **Power Breakfast sponsored by SEEC**
- 8:30-8:45 **Morning Introduction**
- 8:45-9:30 **Customer Relationship Management Case Study**
- 9:30-10:15 **Sourcing Strategies: A Case Study** ERP Outsourcing
- 10:30-11:30 **IT Process Improvement Panel** Customer Relationship Management (CRM) Panel
- 11:30-12:45 **Executive Luncheon sponsored by Computer Horizons**
- 12:45-2:00 **Vendor Showcase**
- 2:00-2:45 **Navigating the Legal Maze** E-Services
- 2:45-3:30 **Creating Corporate Outsourcing Policy** Business Process Outsourcing
- 3:30-4:30 **Enterprise Resource Planning Case Study**
- 4:30-6:00 pm **Evening Reception and Solutions Showcase**

Day 3 June 30, 1999

- 8:30-8:45 **Morning Introduction**
- 8:45-9:30 **Maintenance Outsourcing Case Study**
- 9:30-10:15 **Outsourcing: A CIO's Perspective** Network Services
- 10:30-11:30 **ERP Outsourcing Panel** Application Modernization & Maintenance Outsourcing Panel
- 11:30-12:45 **Executive Luncheon sponsored by Oracle Consulting**
- 12:45-1:45 **Measuring Outsourcers** Managing Offshore Relationships
- 1:45-2:30 **Afternoon Keynote: Ten Imperatives for Future Success as a CIO**
Wendell Jones, Author of Outsourcing Information Technology Systems & Services
- 2:30-3:15 **Closing Keynote: Re-Aligning IT with Business Strategies**
William M. Ulrich, Conference Co-Chairman & President, Tactical Strategy Group, Inc.

Welcome Reception

Join Us on Sunday, June 27th from 5:00-7:00 pm

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An Unparalleled Conference Program

BrainStorm Group has brought together the world's leading IT Outsourcing experts to provide you with winning strategies for incorporating SMARTSourcing into your organization. No sales pitches, no cookie cutter program—just the facts. The SMARTSourcing Conference Series is committed to providing you with information on available sourcing options so that your organization can make an informed decision on selecting the right strategic partner.

San Francisco Program Highlights

Implementing SMARTSourcing:

- ◆ Redefining Outsourcing Options
- ◆ Latest Outsourcing Metrics
- ◆ CIO Roundtable: The Future of SMARTSourcing
- ◆ State of the Practice SLA's
- ◆ Managing Partner Relationships
- ◆ Navigating the Legal Maze
- ◆ Launching a Successful SMARTSourcing Engagement
- ◆ Managing Offshore Relationships
- ◆ Challenging Your Outsourcer

Hottest SMARTSourcing Trends:

- ◆ Business Process Outsourcing
- ◆ ERP Outsourcing
- ◆ Application Development
- ◆ eServices
- ◆ Network Services
- ◆ Application Modernization
- ◆ CRM Outsourcing



Additional San Francisco Presenters include:

Chris Campbell
Director of Sourcing Strategies
Gartner Consulting

Bill Martorelli
Vice President of Application
Resourcing Strategies
Hurwitz Group

Gary Venner
Sr. Vice President and
Director of Consulting
Technology & Business Integrators

Gale Williams
Author of
Outsourcing: A CIO's Perspective

Stephanie T. Moore
Director
Giga Information Group

Bruce Hall
Vice President
Trigent Software
and former Gartner Group Analyst

Attendee Benefits

Our San Francisco conference program will provide insight and education on the strategic advantages of SMARTSourcing, redefine antiquated images of "outsourcing", and present the business imperative for the strategic implementation of project sourcing as a way to leverage an organization's IT investment.

Attendees will receive:

- ◆ Admission to In-depth Working Sessions and the Exposition
- ◆ Evening Networking Receptions and Co-Sponsor Hospitality Suites
- ◆ SMARTSourcing Solutions Directory
- ◆ Discounts on IT Outsourcing Research Reports
- ◆ Conference Attendee List
- ◆ Complimentary Issues of Leading Publications
- ◆ Complimentary SMARTSourcing Welcome Package, Show Guide and Proceedings
- ◆ Admission to the Welcome Reception

SMARTSourcing Conference package also includes: daily hosted luncheons, coffee breaks, receptions, & special discounted room rates at The Fairmont Hotel Alop Nob Hill.

Who Should Attend?

Chief executives, operating, financial and information officers, divisional and business unit managers responsible for the evaluation, selection, purchase of outsourcing services and the management of outsourcing relationships. Make plans to attend SMARTSourcing San Francisco if you're looking to:

- ◆ Learn about the latest tools and metrics available to measure value created through IT Outsourcing.
- ◆ Gain expert insight from industry "thought leaders" on the latest developments and advantages of IT Outsourcing.
- ◆ Hear from experienced outsourcing veterans like DuPont, Michelin Tire, TWA, Dr. Pepper, AMS and others.
- ◆ Network with your peers from organizations across the United States and the world.

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Julie Giera of Giga Information Group

AN INSIDER'S VIEW ON OUTSOURCING

The SMARTsourcing Perspective

As a research director at Giga Information Group, Julie Giera covers a range of topics, including IT management, strategy, planning and outsourcing. She is a 22-year veteran of the IT industry whose career includes stints as CIO of a major banking institution and as a senior executive in the outsourcing and professional services fields. She graciously agreed to be interviewed by Peter Bockner, Managing Editor of *Computerworld's* Enterprise Business Solutions Unit, while she was in Moscow.

Q: As a CIO, how much did you "sell yourself" of outsourcing, and what was the biggest motivating factor?

A: When I was in the CIO position, very little outsourcing was done. Outsourcing was considered to be an option only for companies who were in trouble. Obviously that whole equation has changed in the past 10 years, particularly in the banking industry, where outsourcing is a strategic tool rather than just something to decrease cost.

Banking and financial services are very heavily dependent on technology, and as such, once deregulation hit, banks had to be more competitive than ever. In an environment of mergers, acquisitions, and increasing competitive pressure, outsourcing allows them to perform the core competency of banking rather than the IT function.

Q: How often does a company have to bring an outsourced function back in-house?

A: Less than 5% of the time is any rough guess. How hard it is to bring back in-house depends on the level of outsourcing the company has done. Once you have outsourced the infrastructure, it is extremely difficult, nearly impossible to bring it back in-house. There's a good argument for creating a core set of IT skills in-house, and outsourcing around that, but it doesn't happen very often. The need to change outsourcing suppliers, or bring the IT function back in-house usually only happens with really bad outsourcing agreements.

Q: We all know people who are hands-on everything. As an outsourcing executive, how did you deal with those people if they were the decision-makers?

A: The tendency to control is common among IT managers. They are accustomed to being in the minutiae of technology, rather than just helping the organization facilitate

business decisions. Often, as a result, outsourcing is sold to other parts of the organization, the CFO or the marketing manager, for example, and then dropped to the CIO's lap. A good IT manager has to

become much more of a relationship manager, procuring technology rather than developing it all internally. CIOs have to be focused on the management of technology and technology suppliers in the connected enterprise, rather than focused on the technology itself.

Q: What things should outsourcing companies do that they don't?

A: A lot of outsourcing companies are focused specifically on the next set of revenues, as opposed to those who will give up some short-term revenue for the sake of a long-

term customer relationship. Long term is the right mindset, especially with the onset of e-commerce, the Internet and the resultant connected enterprise. The pace of business change with mergers/acquisitions coupled with the pace of technology change demands

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Cognizant Technology Solutions Corporation is a subsidiary of IMS Health, the leading provider of information solutions to the pharmaceutical and healthcare industries worldwide. Global revenues in 1998 were \$38.6 million. Originally formed in 1994 as the in-house technology development center for The Dun & Bradstreet Corporation, the company was named Cognizant Technology Solutions in 1996, when Dun & Bradstreet formed the Cognizant Corporation to provide insight into three fast-growing sectors: healthcare, media and technology. With the continued growth of these sectors, Cognizant Technology Solutions made an initial public offering in June 1998 (NASDAQ:CTSH). In July 1998, Cognizant Corporation evolved into two separate entities: Nielsen Media Research and IMS Health. IMS Health retains a controlling interest in Cognizant Technology Solutions.

Headquartered in Tannock, New Jersey, Cognizant Technology Solutions now has seven offshore software development centers in Madras (4), Calcutta (2), and Pune (1), India. Cognizant also has sales and business development offices located in Chicago, San Francisco, Toronto, Canada and London, England.

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flexibility and give-and-take between customer and outsourcer. Outsourcing companies are much more a part of the virtual enterprise, they should have a stake in the health and well-being of that enterprise over the long haul.

Q: This supplement is for a show called SmartSourcing. But what about stupid sourcing? What's the biggest mistake firms make when outsourcing?

A: The biggest mistakes are when companies: 1) go into outsourcing strictly for cost savings, without a full understanding of their business objectives; 2) rush into a relationship because there's a gun to their head, so they don't exercise due diligence and partner with a company that's a good vertical match for them; and 3) sign contracts that are too long-term. In this age of technology, signing a 10-year contract is ludicrous. You may get a price break but not enough to make it worth giving up flexibility.

Q: Companies are striving to offer outsourcing services for intranets and extranets. How great is the danger that they won't have enough network bandwidth to support the users?

A: In any outsourcing of intranet or extranet technology, the two major concerns are bandwidth and consistent levels of support. It's not enough just to have the capability to offer bandwidth, you have to offer the ability to handle the variable nature of transaction activity over these kinds of technologies and to support high levels of change with consistent service. Not many outsourcing companies are prepared to consistently offer these kinds of service levels.

Web-hosting is also emerging as a "new" service. It's really just the old service bureau model of 20 years ago—the same package with a new ribbon. If your organization is going through tremendous change, the service bureau model is very difficult. It's a good low-cost way to enter into new technology areas, but the flexibility to change the application through customization is usually not available or is cost-prohibitive. The service bureau model will work for some companies; it's just not a "one size fits all" option, as some marketers would have you believe.

Q: Outsourcing desktop service functions is seen as a way to free up IS staff to tackle challenges like the Y2K issue and the euro

conversion. Once these challenges are met, will the functions be brought back in-house?

A: No, everyone is looking at this area. Desktops are a high-maintenance, low-return kind of technology from an IT perspective. While certainly valuable to the busi-

ness, the kinds of "value add" that internal IT organizations can provide to desktop management is usually much less than can be provided by an outsourcer who specializes in this area. High-maintenance, low value-add! Those are the things you outsource in a heartbeat.

Q: Is outsourcing the recruiting function primarily in response to a tight labor market? Will it remain popular if the tight labor market ever goes away?

A: Yes and yes. Back-office functions like recruiting and payroll management are

not core competencies for most organizations. So is it likely to continue? Yes it is.

Q: Get any good outsourcing jobs?

A: I'm on vacation, outsourcing jokes are the funniest thing from my mind. ■

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At PKS, we recommend classifying your application portfolio into three general categories that account for the emerging commodity nature of many technology services, as well as the changing relationship of IT to business objectives:

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William Ulrich of Tactical Strategy Group says:

CHALLENGE YOUR OUTSOURCING VENDORS

To fully capitalize on an outsourcing contract, you may need to re-evaluate the factors that motivated your decision to outsource in the first place.

Are you offloading an IT function that has become a headache? Are you seeking multi-year cost reductions? Maybe management wants to refocus on core competencies that no longer include IT. Tactical factors should not be pursued to the exclusion of long-term opportunities. Define how you want to leverage IT and challenge your outsourcing vendors to get there.

Outsourcing vendors offer value beyond lowered aggregation levels and short-term cost savings. Opportunities for leveraging vendor agreements are often overlooked. Consider a five-year maintenance contract, inked in 1996, that shifted support to an outsourcing vendor. Typical service level agreements (SLAs) from that era omitted language dealing with the Year 2000 issue.

As a negotiated solution to this dilemma, one vendor sent systems offshore to be fixed. The code was returned riddled with errors, forcing the vendor into a last-minute remediation project. The client, the vendor and the client's customers were exposed to risks by this short-sighted decision.

You face two key challenges when crafting an outsourcing contract: to anticipate changes in the business and technical landscape and build these changes into the SLA, and to consider personnel issues. Say a company wants to hire consultants to maintain its Cobol systems while launching an in-house project to web-enable key business functions. It makes more sense to build the web-enabling requirement into the maintenance contract and transfer in-house personnel to the vendor's payroll. This approach gives the vendor the skills to maintain the existing systems and the knowledge needed to web-enable the legacy environment. The vendor gains the flexibility and economies of shifting skilled personnel into areas where they are best suited. Meanwhile, a project originally

designed to dump a maintenance headache now delivers bottom-line value to your company.

Outsourcing vendors can offer tactical and strategic value under a single SLA. Short-term deliverables include re-documented systems,

rationalized data definitions, a data warehouse and web-enabled functionality. Long-term value includes redesigning core data structures, transforming architectures into web-oriented environments and replacing legacy systems with packages.

Many vendors segregate outsourcing, ERP, Internet and other services into separate offerings. But creating a comprehensive RIT that integrates a set of requirements should address this issue. If you challenge vendors to provide comprehensive solutions to short-

and long-term requirements, they will respond. All you have to do is ask. ■

William M. Ulrich is president of Tactical Strategy Group, Inc., strategic planning consultant, author and co-chair of the BrainStorm Group's SMARTSourcing and Year 2000 conferences.

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Satyam Computer Services Ltd. is an international, multi-faceted and totally integrated IT solutions provider.

As a SEI-CMM Level 5 company, Satyam offers a broad range of expertise in Information Technology, including application development and maintenance, systems integration, ERP solutions, e-commerce, year 2000 testing services, Oracle applications, engineering services (CAD/CAM/CAE), web-centric solutions and management consulting.

A solid blend of consulting and IT skills has made Satyam one of the fastest growing IT solutions providers in the world. In just 10 short years, Satyam has built a network of more than 4,300 IT professionals operating out of offices and state-of-the-art development centers in the United States, India, Japan, Singapore, and the United Kingdom.

Satyam's professionals work hand-in-hand as IT partners with more than one hundred clients worldwide. 22 of which are Fortune 500 companies. The company's technical experience extends into developing, implementing and maintaining specific business applications to implementing and supporting enterprise-wide solutions for a variety of industries, including banking, insurance, manufacturing, telecom, healthcare, software and high-tech organizations.

Satyam is one of only ten companies in the world to achieve Level 5 assessment of the Capability Maturity Model (CMM) instituted by the Software Engineering Institute (SEI) of Carnegie Mellon University. CMM-SEI Level 5 is considered one of the most sought after global quality assessments in the software industry. At Level 5, the highest stage, an organization is characterized as continuously improving the range of its process capability and the performance of its projects.

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Kanbay Incorporated is an information technology consulting firm utilizing a multi-site approach to rapidly deliver high-value systems integration solutions. Founded in 1987, London, Hong Kong, Singapore, Melbourne, Nice and Pune, India, Kanbay is headquartered in Chicago, with offices in Hartford, Seattle, Los Angeles, Denver.

According to founding partner and CEO Raymond Spencer, "Kanbay grew from under \$10 million in revenue in 1995 to \$36 million in 1998 and now employs more than 700 people worldwide." The management team consists of advanced technology experts with extensive experience in the US, EU, and Asia.

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Enterprise Systems Implementation services and applications support four main business constituencies: suppliers, operational departments, service departments, and customers. Kanbay has experience with many types of packaged business solutions, but focuses on SAP HR, Oracle and PeopleSoft.

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Kanbay works with clients to formulate strategies that enable them to thrive and evolve in a rapidly changing world. We focus on aligning corporate strategy with operational initiatives, innovative business processes and the utilization of enabling technologies to empower the business units and people to become more effective.

William Martorelli, Vice President of Hurwitz Group

E-BUSINESS SERVICES

The SMARTsourcing Perspective

William P. Martorelli is Vice President, Applications Resource Strategies, for Hurwitz Group, Inc., an analyst firm in Framingham, Mass., where he directs the Balanced View Application Strategies Service. This service provides advice on the staffing dimensions of application implementation, including staff education and the use of external partners.

The interview below with Mr. Martorelli was conducted by Peter Bucher of Computerworld's Enterprise Business Solutions Unit.

Q: To what extent is the popularity of the outsourcing of e-business services being driven by resource constraints caused by the Y2K problem?

A: A lot of companies are outsourcing one or more aspects of their e-business, the phenomenon is very real. By the same token, with regard to the Y2K question, we at Hurwitz don't see e-business outsourcing being highly related to those resource constraints. What we're seeing is that people are outsourcing the services that make sense, in terms of the functionality they require in light of the necessary equipment and infrastructure cost. Companies are finding that they face significant infrastructure costs and that they can forestall those costs through e-business outsourcing.

Q: Is there a type of company that is the ideal or most logical to outsource to e-business services?

A: No. A lot of big companies have used a variety of e-business services, and a lot of small companies too. The small companies include web merchants who are outsourcing a lot of their e-business capabilities. Smaller companies are looking at end-to-end e-business solutions that may encompass hosting. Larger firms are typically looking at complex website hosting and co-location, but there are no hard and fast rules.

Q: Is e-business synonymous with e-commerce?

A: We at Hurwitz think e-business encompasses more than e-commerce, which is generally thought of in transactional terms. In e-business, we're keeping in mind the breadth and depth of interaction with other systems, including legacy systems, that are part of the broader picture.

Q: What's the biggest difference between the paradigm of outsourcing e-business services

to that of outsourcing the data center?

A: There are a lot of differences. When you're outsourcing a data center, you're taking something that has existed for a number of years

and farming it out to someone else to handle, whereas in the e-business world you're looking to build up some solutions that either you haven't had at all, or haven't had for a long time. People in the IT outsourcing world have a specific way of looking at things. They think in

terms of an existing scope of service that needs to be addressed in the outsourcing relationship, whereas in an e-business relationship things are more open-ended. This difference is significant and holds implications for such issues as contractual elements, SLAs, and

pricing mechanisms which are quite different.

Q: If a company were going to outsource their e-business services, what is the first thing they should do?

A: To make sure they understand their rationale for taking that route. What are you

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Tactical Strategy Group, Inc. (TSG) has been providing strategic information planning services to corporations and government entities since early 1990. Our unique offerings include examining large-scale IT environments, assessing future information needs from a business and technical perspective, and assisting with the development of a cohesive transition strategy for client information architectures. While cognizant of the need to leverage new technologies and ERP-based packages, TSG endorses architecture migration options that shun many of the "big bang" strategies that have exploded in the past. TSG service offerings include the development of information transformation strategies with a focus on identifying phased implementation options to meet short-term and long-term needs.

TSG founder William Ulrich is an internationally known consultant, speaker and author on information technology, transformation strategies and business continuity planning. He has co-authored two books and has written hundreds of articles addressing information strategies for companies. Ulrich is also author of a systems redevelopment methodology that facilitates the integration of systems across new and old technologies. With over 21 years in the IT field, Ulrich has helped hundreds of organizations capitalize on the knowledge built into their legacy systems. He has delivered facilitated sessions and business contingency planning workshops to clients around the world. Known as the consultant's consultant, his clients include the world's largest systems integrators, hardware manufacturers and accounting firms as well as many corporations and the U.S. and Canadian federal governments.

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thinking of outsourcing and why? What is the relationship of this particular aspect with the rest of your e-business strategy?

Q: You note that e-business outsourcing contracts are generally shorter in duration than traditional IT outsourcing contracts. Which side benefits more from that?

A: The main reason that IT outsourcing contracts are so long is because a lot of the cost relates to the investment required to come in and take over an out-

sourcing function, such as a data center, and the need to amortize that cost over a number of years. But if you're going to go to move an e-business capability to a hosting capability, the contractual lengths will tend to be much shorter.

On the face of it, the shorter durations would seem to provide more flexibility to the customer, but this is not necessarily true. Lock-ins in outsourcing are not necessarily contractual in nature. For

example, any time you outsource something, it's hard to bring it back in-house. Outsourcing e-services can have the same economic and resource barriers that face any outsourcing customer seeking to bring functionality back in-house.

Q: What's the biggest danger for a company outsourcing its e-business services?

A: Like in traditional outsourcing, you're putting yourself in a position where

you risk precluding your freedom for future movement. This is particularly challenging in the e-business realm, where things are moving so much faster. It is easy to envision a scenario whereby an e-services outsourcing scenario eventually falls out of tune in terms of the needs of the corporation.

Q: You say that the potential for spotty customer service exists on the part of web hosting suppliers. How can a company circumvent that?

A: Some e-business outsourcing companies may not have enough of a mature understanding of what enterprise-class customer service really means. A company's only way of avoiding that is through the traditional means of verifying that a company is capable of doing what it says: reference checking and the formulation of effective SLAs. Also, a company should have a full understanding of the potential for unforeseen charges.

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HOW NOT TO COPE WITH STRESS

1999 will be a death march. So how do you keep your techies on board, happy and nose-to-the-grindstone? By Michael Cohn

Memo to the HR department: Choppy waters ahead — 1999 is going to be a death march. Between the euro, Y2K and all that Intra-Java-ERP stuff, your IT folks are about to blow a fuse.

The hours are immense. The stress is incredible. And don't look now, but half-a-dozen headhunters are thumbing through your corporate directory as we speak. So how do

you keep your techies on board, happy and nose-to-the-grindstone during this nightmare?

I don't have a clue. But one thing's for sure: Don't go with what's worked before. Give up the perks of the past. Festive potluck lunches. Attaboys. Casual Saturdays. They just won't cut it anymore. It's time to turn up the heat.

Make people downright gleeful, lest they bolt for greener pastures! And to do so, you might not want to consider the following:

More Money

It won't work. Your folks don't want it. They don't have time to spend it. Studies show

that hefty bonuses offer only temporary, shallow satisfaction, unless you suddenly need \$620 for a rebuilt transmission on the minivan.

And worse, annual raises are now seen as meaningless, token management gestures.

Of course, if that raise winds up as 0.8%, management may see some other "meaningful" gestures.

Promotions

Nothing's sadder than the corporate ladder. It is no more.

Fancy titles don't impress techies. Big jobs only bring big problems. Techies would rather move out than up.

To them, being a manager means stress. Pain. Misery.

Then again, even talking to a manager usually means stress, pain and misery, but at least you can then tape them with a kick-me sign when they walk out of your cubicle.

Camp Time

There's no such thing. Your folks have been working like dogs since Day One. They've never put in less than 60 a week. Don't even suggest comp time. It would cripple your company. If anyone ever tried to take it, they'd probably be off till 2003.

Weekend Getaways

Picture this: Your top project manager has just spent the past 200 business days of her thanks-to-work-nonexistent life between Cleveland and Kansas City, crammed in

coach, seat 11C. And what does she get for her troubles? An all-expenses-paid thank-you trip (which will likely include four-and-a-half more ecstatic hours in 11C) when all she really wants is to go home and water the plants.

Mementos

Get rid of them. Plaques. Mugs. Umbrellas. IT folks want these about as much as a hemorrhoid.

After working 84 consecutive weekends, looking at any golf ball or garment sporting a company logo will turn their stomachs.

This includes watches, caps, ties and especially the recently-popular "I remediated 2.6 million lines of RPG code, and all I got was this lousy T-shirt."

Phish Foods

Fancy furniture was once a big draw. Corner offices were key. People would do anything to escape the confines of a cubicle. But no more: 16-by-28 with tasteful window treatments can never repay 12 months of implementation hell. You at least have to throw in a nice credenza.

Athletic Leagues

Here's another lame idea. Spend all day arguing with everybody and their brother about deadlines and databases, then spend the better part of an unenjoyable evening arguing with them some more, while also dropping a bowling ball on your foot.

Banquets

Finally, take the people you're already nauseated by because you're with 'em 16 hours a day, stick them in a room with a big chandelier, make them wear ties and give them a half-warm plate of chicken marsala.

Morale will plummet. Spirit will sink.

Trust me, they'd be a lot more excited about pizza and beer. Stay away from dainty dinners. Bug the banquet!

Although, if you throw in a few of those little pigs in blankets, I'm in. I just love those pigs in blankets. ☺

Cohn is a computer consultant in Atlanta and is (sick of computers, tired of writing bylines, in desperate need of sleep) not handling the pressure too well.



SOMEONE TO WATCH OVER ME

IT departments increasingly assign mentors to coach new hires and gain loyal leaders in the process By Jeff Zbar

LAST AUGUST, the corporate support systems team at Office Depot Inc. was slated to give a briefing to senior management on the status of the company's mainframe billing system.

The presentation should have fallen to a director from the business side supporting the key initiative. Instead, Ingrid Kluth, vice president of corporate support systems, asked her direct report and mentoree, Mike Schmidt, if he wanted the job.

"If I believe they're ready and capable to do that, I like for them to make the presentation," Kluth says. "It's good for them. It builds their confidence, and they should get the recognition for having accomplished something significant."

Nervous but confident about his first briefing, Schmidt, a director of corporate support systems at the Delray Beach, Fla., office supply retailer, took the offer as a nod to his capabilities — and a positive step in his career.

"It was a great opportunity to get some face time and bring management up to speed on one of the key initiatives," Schmidt recalls. To prepare, Schmidt presented a dry run to Kluth and bounced the pitch off his other mentor, senior vice president of information

systems Bob Conklin. "My confidence has gone up quite a bit. They prepared me and almost sanctioned me as an expert on the application side of the house," Schmidt says.

The experience has come full circle. Today, Schmidt is a mentor to three newer information technology staffers at Office Depot.

Mentoring: An Important Tool

Mentoring and coaching have become an important tool in corporate America and its information technology departments. Employees want to learn the corporate culture or just how to get along in a company. Employers are keen on attracting and retaining the best workers in the field. Mentoring is a way to emotionally tether the two.

"With such turnover in IT,

it's something that [companies] have to get focused on to make employees feel more a part of the family or team," says Gregory A. Netland, co-president of New Boston Systems, an IT staffing firm that uses mentoring for its 400 IT staffers internally — and espouses it for its more than 3,000 consultants in the field.

"People want workers up to speed quickly," Netland says. "It helps to have somebody who's been around whom they can go to."

Schmidt agrees. Between Kluth and Conklin, he says, he feels he has senior managers who are keen on overseeing his advancement and who welcome his questions and concerns. "Everyone looks after the junior management types of folks," he says.

Coaching and mentoring can play a role as motivational and success-building tools at all levels of an IT organization, says Jim Rohrbach, a success skills coach associated with Nightingale-Conant Corp., a producer of audio programs for personal and professional development.

Mentors help junior staffers objectively identify key areas of improvement, design an ac-

tion plan to overcome any obstacles in those areas, monitor results, give feedback and hold them accountable for their performance, Rohrbach says. The interplay should be supportive and nonjudgmental, even if the mentor is the associate's superior, he says.

It starts with either a formal assignment linking mentor and mentoree, or, as in the case of Schmidt and Conklin, one seeking out the other. Often, word of willing mentors flows around an organization's rank and file, who then approach the mentor for guidance or to start a relationship, he says.

Other relationships can be more formal, like that between Schmidt and Kluth. They hold biweekly meetings to discuss Schmidt's career advancement, company issues and other issues not directly related to project assignments. In some organizations, the mentor uses such meetings to help hone the mentoree's career path. Some companies, like Office Depot, welcome frank discussions about job shifts, either within the organization or outside the company, if necessary.

CIO Bill Seltzer circulates headliners' requests for talent if he knows there's a fit.



SHOW ME THE WAY: Mentoring programs have proved to be universally beneficial at Office Depot. Pictured here (left to right) are mentors Bob Conklin and Ingrid Kluth, with mentee Mike Schmidt

Such openness has paid off for Seltzer. He claims that during a previous three-year stint as CIO at H.F. Butt Grocery Co. in San Antonio, he had no IT staff turnover. "What's best for them is usually what's best for me and the company," he says.

The ultimate goal of an internal mentoring or coaching program should be to create interaction, with regular or continual follow-up for discussions of new ideas or results from past chats, Rohrbach says. That isn't a one-way street. While mentorees hone their career direction or place within the organization, mentors develop management skills and often are recognized for the success of their men-

tores, Rohrbach says.

In the Office Depot model, a supervisor can be a mentor, but Rohrbach suggests more separation between mentor and mentee. That can foster more candid discussion about career plans, he says.

"In this regard, a good coach is a client's advocate, maintaining all matters in confidence and always looking out for the client's best interest, regardless of any political considerations," Rohrbach says.

A Career of Coaching

Kluth and Conklin have been mentors since before their arrival at Office Depot three years ago. Conklin had been a mentor at Dayton Hud-

son Corp. and previously at IBM; Kluth had similar experience at Revco D.S. Inc., the drugstore chain that merged with CVS Corp.

The two were persuaded to become mentors by their own role models early in their careers. Conklin had a mentor more than 20 years ago when he was a systems developer at IBM. Kluth's first mentor was a manager at Burroughs and later, Seltzer, who was then CIO at Revco.

Though the mentoree certainly learns from the input, the mentor also gains from the relationship. For her part, Kluth is developing her management skills, making her more valuable to the company

and progressing in her career development. She's also creating more successful junior managers in her department, which will increase the department's productivity, she says.

Family Values

When Brian Craft arrived as a programmer trainee at Alltel Corp. in Little Rock, Ark., in January 1998, he could have felt disconnected. Linda Jones made sure he didn't.

"This is a big place," Craft says of the company's sprawling campus, "but the [mentoring] program helped me realize it wasn't going to be intimidating after you've been there a few days."

In his first month on the job, Craft, a mathematics graduate from Louisiana State University at Shreveport, was introduced to Jones, his full-time mentor for the next five months. Jones, a senior software applications consultant who now serves as one of four permanent mentors at Alltel, works with more than two dozen mentorees for up to five months, training them on the company culture and its business and IT practices, she says.

Jones brings her 24 years of experience at the company to try out Alltel's standards and methodology, she says. A self-described patient, easy-going and instructive person, Jones says she believes she's the ideal mentor.

Mentoring isn't for everyone, Jones says. As with many organizations, mentoring at Alltel and Office Depot is voluntary. Human resources managers and company executives must realize that not every manager would make a good mentor and that the policy shouldn't be required of all managers.

The best mentors are accessible, approachable, informative and deftly familiar with the organization or business practices. Tenure in the company also helps the mentor personalize — or even relate for themselves — the mentoree's experience, Jones says. "It's easy to remember when you were in the training mode yourself and what they go through," she says. "I learned on the job."

Zhar (jff@goinsight.com) is a freelance writer in Coral Springs, Fla.

Want a Mentoring Program? Here's What To Consider:

Any Volunteers?

Potential mentors shouldn't have to be asked twice to participate. The program works best with volunteers who are keenly interested in helping mentorees and the company attain their goals.

Good Mentors are Good Listeners

They're "people people," usually former mentorees, who are interested in helping others achieve their career goals. They're sounding boards and quick with thoughtful feedback.

Not Everyone's a Mentor

Realize that some people aren't cut out for mentoring. This is no discrediting worthy of penalty or scorn — as long as they're not abrupt or disrespectful if someone comes seeking their advice or input.

Mentoring Doesn't Pay — Money

Don't expect to get paid extra for time spent mentoring. Instead, some companies tie mentoring into year-end performance reviews, bonuses and general career advancement — as well as personal satisfaction.

Inside or Outside the Loop?

Some companies insist the mentor not be the mentoree's supervisor; others believe the supervisor or manager can bring added value to the experience. This question is whether the mentoree will feel comfortable discussing career options with his supervisor?

Is Writing or All That?

Some companies have formal mentoring policies in place — along with general training or company indoctrination — for new hires. A separate, informal program often exists for more-veteran employees. Which program to use depends on the company's goals, needs or culture. — Jeff Zhar

Dear Career Adviser:

I am a college grad with over six years of experience in IT. I have been working on Oracle products (Developer/2000, Designer/2000, Oracle database) and SAP R/3 either as a programmer, senior programmer or team

leader. Since I now have both technical and business analysis experience, what career path do you suggest? Should I stay technical, focus on business analysis or move into data warehousing or e-commerce? What skills do I need to add?
—AT A CROSSROADS

Dear Crossroads:

None of those choices is wrong, but Oracle Corp. appears to be in greater demand. Just ask any company whose core strategy is to present dynamically served Web pages to consumers whose extensive profiles reside in a relational database. "Database is an expensive skill set that is critical to our core engine for growth," says Philip Lettis, CEO of The Recruit Co.

On the business side, there's considerable demand for team leaders and project managers with backgrounds in Oracle. "Stay in the business analyst role developing both your technical and functional project management skills," advises Dorey Zulpo, technical recruiter at Quest Enterprises

Ltd. in Wheaton, Ill. (www.questnet.com). Add pack your bags: There could be better than 50% travel time.

Dear Career Adviser:

I have over 25 years of IT experience in San Francisco, mostly as a project manager and senior project manager working in the IBM mainframe/DASD arena. My division had layoffs, but I want to stay here. I'm a middle manager, probably making way under average. I've been with three major companies in my career and haven't moved around enough to stay absolutely current with the market. How would I get into the newer companies? Am I better off as a consultant? What am I worth vs. someone 20 years younger? Should I become a consultant in a senior project management capacity, go to a start-up or get into a more global data processing role? —WARRICK W. WARREN

Dear Warrent:

You'll have to work hard to change your current image, according to most recruiters

who have seen many large San Francisco companies downsize and most of their middle management excised over the past 10 years. "People who grew up in IT who are well-versed in both legacy and client/server systems [and] who can manage people and do hands-on technical work are a rare find," says Jay Boatright, vice president of business development at M Squared LLC, a San Francisco-based professional-services firm.

But while companies like Peapod Inc., Lands' End Inc. and Eddie Bauer Inc. flock to the latest automated warehouse applications, your relatively low rate of pay and job title measured against those years of experience work against you.

After 25 years of work, you'll need to be a superstar to be hired at the upper end of the Big S, a top-tier consulting

firm or the latest hot start-up. With fast-tracking, newer graduates are your competition at your pay range and title. "Try throwing your resume onto Dice.com (www.dice.com) to find a smaller contracting house that will promote you enthusiastically," says San Francisco-based recruiter Ilana Brody.

Also enroll in courses that teach more up-to-date languages like C++ and Java, a relational database and perhaps

Common Object Request Broker Architecture. Because opportunity equals years of experience in relation to job title, salary, technical competency and leadership/energy, you should definitely avoid discussing your prior undermarket compensation until you have newer competencies, contracting experience at a higher

rate of pay and an upbeat attitude under your belt. So don't hide out in that warehouse if you really want to work.

Dear Career Adviser:

I have completed a round of first interviews at three companies for a customer support job. I have been called back for second interviews. I believe I have demonstrated applicable work experience and technical skills in the first interviews. How can

I stand out from the crowd during subsequent interviews?
—ABOVE THE CROWD

Dear Above:

At each company, get real answers from the interviewer. Be sure to ask about their departments, backgrounds and if you'll be working with them. If your interviewers are senior types, search their names on Diggible.com for information about them. Also, find out where you stand compared with your competition. If the person interviewing you bristles at the depth of your preparation, pay attention. How each company or recruiter responds to your quest for a good second interview conveys a lot about that recruiter or the hiring company's style.

Next, prepare a list of the projects that you want to talk about and that you can hand to the interviewer. Prepare to answer questions about each entry. That helps eliminate some of the less "well-field" interviewing. Because you're interviewing at three companies, you can show what you know about a specific marketplace.

Finally, don't be afraid to ask about the decision time frame and where you stand. You'll want to present yourself as a candidate in demand, not as someone who is arrogant because of a hot market but as a professional who is committed to making a change for the right reasons. ■

WORKSTYLES

A Day in the IT Life At... Home Depot

Name: Curtis Chambers

Age: 31

Title: Information Services Manager, infrastructure technology group
Company: The Home Depot Inc., Atlanta

Years with company: 5

Years in current position: 2
Spare-time pursuits: Volleyball, yard work and, of course, home improvement.

His Day - Wed., April 28, 1999:

7:25 a.m. Arrive at office.

7:30 a.m. By e-mail: Set up inter-

views to hire enterprise object modeler. Then team member to attend Jira conference based on who will get the most out of it. Handle request from developer to get tech support on his machine. "We have individual licenses so every time we want to add someone we have to drop someone off. It's kind of a pain."

8:00 a.m. Purchase scheduled on-site meeting because team member doesn't show up or call in. Talk with data modeling manager about tasks. Decide to get training to focus on how much process should be incorporated into the tool.

10:30 a.m. Send e-mail to developer, who's pumped up about PDI, explaining that it's not one of the

company's standard internal development languages. He asks for clarification of enterprise design on languages. Write memo on technical infrastructure and approved languages for approval by VP.

Review outline for recapitulating of current knowledge of distributed application training courses, using 100s for introductions, 200s for external classes (Java), 300s for architecture and 400s for "graduate work" (performance tuning).

Talk with team members about ongoing effort to upgrade methodology. "I want to make it a process that flows - to show people how this task looks these next things on they can see why they're doing this."

News: Attended department lunch with technical infrastructure team for new CFO, who discusses IT's role in business and the need to nurture

entrepreneurial spirit despite rapid growth. Run team-building exercise for 65-person lunch group. "If I've learned one lesson, it's that these things have to be fun."

2:30 p.m. Still no word from 8 a.m. no-show. "As a manager, I try to treat people like adults and I expect them to respond like adults and usually they do a really good job. But he didn't even call. It just puts the damper on the whole day."

3:30 p.m. Respond to call from director on where to place a summer intern candidate. "I was in charge of interviewing all our summer interns - about 40 candidates over three weeks."

Meet with intranet documentation team. Choose people to review process and documentation of all projects in each of the four development infrastructure areas.

5:30 p.m. Talk with former team member who moved to another group and steps by for advice. "He didn't tell me he was getting bumped back to his own manager. He just needed someone to listen and talk with him about it."

6:45 p.m. Finish with vendor. Final checks and adjustments on interview schedule for object modeler, 7:05 p.m. Go home.

What do you like most about your job? "The challenges of turning technology into business solutions. The role of which technology is making makes our jobs very exciting."

What do you like least? "Since the concept of design management is fairly new at The Home Depot, many times we are brought in late in a project. If on get involved earlier, it is much more like a partnership." —Kathleen Meloyd



FROM WRITING IN AN EXPERT IN high-tech careers and recruitment. Send questions to her at www.computerworld.com/john

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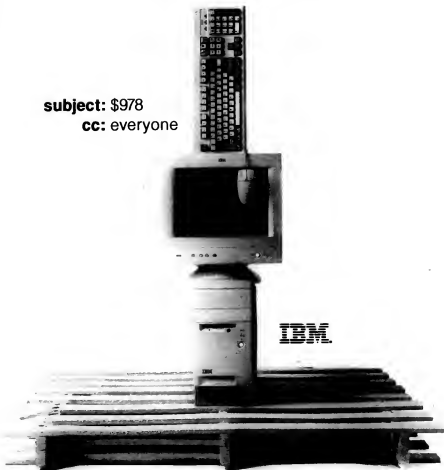
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TECHNOLOGY

CISCO'S VPN PUSH

Cisco's new high-end 7100 Series VPN routers combine many features needed to keep virtual private networks up and running. They handle tunneling, data encryption and bandwidth management — and start at a very attractive \$12,000. **84**

GOSLING TALKS JAVA

Sun Microsystems' James Gosling explains why it's difficult to make Java 2 cross-platform-compatible and how the company plans to tackle the challenge. **74**

MICROSOFT Y2K TOOLS

Once considered a millennium laggard, Microsoft recently rolled out tools and workshops to help customers deal with the year 2000. **74**

SAP-HAPPY

Call us SAPpy, but we're loaded with stories on the software giant. We recap product rollouts from the Sapphire confab; empty out our reporter's notebook; and explain why high-dollar SAP skills may take a toll on your personal life. **76, 77**

GREP THIS!

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QUICKSTUDY

Whether part of an operating system or middleware, transaction servers make sure business transactions are completed without interruption. **90**

FLASHBACK

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SMART PHONES

We review Motorola's StarTAC Mobile Organizer and Nokia's 9000i Communicator. But wait until you see the phones vendors are promising for summer. **98**

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DATA MINING = BUSINESS FOCUS

CATALOG RETAILERS, MORTGAGE COMPANIES and others are striking gold by using data mining applications. These tools can perform regression, decision tree, neural network, cluster detection and market basket analysis to highlight patterns, show customer tendencies, cut redundant costs and uncover unseen profit centers. Five organizations share their experiences with *Computerworld*.

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GOSLING: NO FAST, EASY FIX ON JAVA 2 BROWSER SUPPORT

Sun hopes plug-ins will help, but progress depends on Netscape

BY CAROL SHAW

SUN MICROSYSTEMS Inc. Vice President James Gosling, considered the father of Java, fielded questions from developers at his company's recent Java Enterprise Solutions Symposium in Paris. A sampling follows:

Q: What do you think about Microsoft Corp.'s announcement concerning Cool, its potential Java competitor?
A: I don't know what to think about it [because] they haven't actually said anything about it — other than it exists and it's the greatest thing since sliced bread. I've just seen marketing literature. It's really hard to know what Microsoft's issue is there. They've had ActiveX out for years, and I never figured out what that was.

Q: Current browsers don't support Java 2 updates, and the plug-in takes a long time to download. How do I make the transition to Java 2?
A: Java compatibility in brow-



SUN MICROSYSTEMS' JAMES GOSLING says keeping Java simple is difficult now that there are millions of developers — and lots of requests

ers has been a rather painful issue for us; it's been the central thing of our court case with Microsoft. And exactly what is going to happen with Java 2 and Microsoft, we don't really know. But the right solution for us going forward is the plug-in: make the plug-in work a lot better than it does now, make it download a lot better

[and have] it bundled with systems. A lot of the download problems with the plug-in end up really being caching problems. ... We've worked out [an architecture] with Netscape for embedding our VM [virtual machine] in their browser so that they don't have to be in the VM business. Unfortunately, that's

not going to come out until Navigator 5.0 — you'd have to ask Netscape when. "Any day now," they keep telling me, but it seems like the actual release date has been slipping in bit.

Q: Why is Sun making the Java 2 platform easier? I think it's good to have a small software development kit and download it on the fly.

A: Oh, boy — do I ever agree with that. We have this real conflict in Java innovations. On one hand, we want Java to be really simple. On the other hand, we have a lot of people asking for this feature and that feature. Keeping Java simple was really easy when the developer community was 40 or 50 people. Now that the developer community is several million, we have a lot of requests. ... One of the things we've been trying to do is break up the release so that there are fewer things integrated into the package. We've been slowly pushing [what] we call the "extension mechanism." And it's not really as near to finished as it ought to be.

One of the goals is to try to make sure the various pieces

that people think of as part of the platform don't have to be a part of the basic [software development kit] — to make the [kit] as small as possible and have all these different [application programming interfaces] that are plugged in and downloaded incrementally. That's not where it ought to be yet, but we're getting close.

Q: Regarding memory leaks in Swing [the graphical user interface component of the Java platform], are there any fixes coming in the near future?
A: Yeah, it's not so much that there are memory leaks in Swing. It's more that Swing tends to hang on to things longer than it ought to, and there's a lot more interdependencies between components in Swing than there really need to be.

The Swing engineering team [is] spending almost all of their time on performance. There's very little actual feature work happening right now. Most of it is dealing with the combination of performance and memory consumption. I don't know their exact numbers right now, but [performance is] getting pretty good. ▀

Microsoft Rolls Out Y2K Tools, Workshops

Numerous offerings include trial version of vendor's network management tool

BY DAVID GREENSTEIN

Microsoft Corp. recently announced it will make several more tools, Web sites and workshops available later this spring to help users ward off year 2000 problems in their desktop and server software.

The company, once considered a laggard in providing year 2000 assistance, has started to provide a steady stream of free information, patches and tools [CW, Jan. 11].

"There are worse offenders out there," said Norbert Kriebel, an analyst at Giga Information Group Inc. in Cambridge, Mass. Microsoft has

learned in the past year that it's better off acknowledging problems than keeping mum, he said.

The vendor's latest offerings include the following:

■ The second edition of its quarterly Y2K Resource CD, available this month, which will include one-click installation of patches for Windows 95, 98 and NT 4.0 with Service Pack 4a, as well as Office 95 and 97. The CD will also include a tool to scan a system and report on the year 2000 status of Microsoft applications.

■ Available today, a Web site for developers to learn how to

ensure compliance in applications developed with Visual Studio (msdn.microsoft.com/visualstudio/y2k/).

■ A TechNet workshop on data remediation and a session at TechEd in Dallas (to be held May 21-28) that covers year 2000-compliant application development.

■ A Web site, available early next month, for end users and consumers seeking an easy, straightforward resource for finding and fixing Y2K problems.

■ A 120-day trial version of Systems Management Server (SMS) 2.0, Microsoft's network and software asset management tool, for consultants helping customers fix year 2000 problems.

John Weigel, a technical architect at window maker Andersen Corp. in Bayport,

Minn., said the resource CD will be helpful because it consolidates all of the major patches released so far.

The year 2000 patches featured in NT 4.0's Service Pack 5 aren't included on the CD, however, nor does it include scripts to automate distribution with SMS.

Microsoft users should con-

sider SMS a potentially helpful desktop management and Y2K remediation tool, especially at a time when Microsoft appears eager to push SMS, Kriebel said.

"[Users] may be able to negotiate lower prices or additional services as the product pushes against momentum," he said. ▀

SNAPSHOT

The Cost of Privacy

Revealing that vendors lost because of software piracy:

REGION	LOSSES	
Asia-Pacific	\$4.1B	\$37.5B
Europe	\$2.7B	\$7.5B
North America	\$3.4B	\$56.3B
Worldwide total	\$10.6	\$105.1B

■ 1999
 ■ 2000 (projected)



PROGRESS

Performance. Not Promises.

PROGRESS
SOFTWARE

Sapphire '99 Roundup: Expanding R/3 to Supply Chain...

BY CRAIG STEDMAN
NICE, FRANCE

The Internet wasn't the only thing on the agenda at SAP AG's European user group conference here this month. Sapphire '99 featured much talk about SAP's plans for the e-commerce future [CW, May 10]. But the German software vendor also announced upgrades of more here-and-now applications that expand its R/3 enterprise resource planning suite into areas such as data warehousing and supply-chain planning.

For example, SAP said it's now shipping a new release of its Business Information Warehouse software with an expanded set of preconfigured data-analysis routines for end users who want to explore the transaction records stored in their R/3 back-office systems.

By year's end, SAP expects the second version of an advanced production planning tool to be ready. New features will include increased support for collaborative planning and forecasting with customers and suppliers, SAP said.

The company also said an upgrade of its knowledge management software for R/3 end-user training is expected in the third quarter. That package, originally called InfoDB, will be renamed Knowledge Warehouse 4.0 and will handle non-SAP data and materials.

Products such as Business Information Warehouse and the Advanced Planner & Optimizer (APO) still don't match all the features that more focused vendors offer, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. Although SAP "may not be the ideal answer," he said, "a lot of users want all this functionality from one vendor. That's SAP's strength."

For example, the domestic grocery division of Muelheim, Germany-based Tengelmann Group already built a data warehouse based on Oracle Corp.'s database. But it may switch to Business Information Warehouse as part of a rollout of R/3-based retailing software. The integrated SAP products are a big lure, said Peter Wickertsheim, the grocery operation's CIO. Tengelmann's data warehouse work may be

put off until late next year.

Wella AG, a Darmstadt, Germany, maker of cosmetics and hair-care products, has a simi-

lar time frame for addressing SAP's beyond-the-back-office packages.

APO is especially intriguing

as a possible replacement for a group of incompatible home-grown applications that Wella uses to forecast demand, Euro-

pean information technology manager Wolfgang Hildebrandt said. But first, he said, the company must finish installing R/3 throughout Europe — a project that could take another two years. ▀

Run with it

... And Noting the Lighter Moments

BY CRAIG STEDMAN
NICE, FRANCE

Two weeks ago, the narrow streets of this French Riviera

city came alive with SAP AG users in search of snails and other culinary delights. Those users also found time for a lit-

tle work — although in keeping with European standards, Sapphire '99 started at 10 a.m. and dutifully stopped at noon for a

two-hour lunch break.

Amid all the tech talk, there were lighter moments:

■ Your budget may not have held enough francs to fund a trip to Nice, but rest assured that you're No. 1 with SAP. In

his keynote speech and a press conference, CEO Hasso Plattner kept telling the overwhelmingly European audience what leading-edge U.S. users are demanding from SAP in areas such as e-commerce and ease of use. Just one more reason for Europeans to think bad thoughts about us, no doubt.

■ In his keynote, Plattner was scheduled to talk for an hour, then cede the microphone to Henk Sangen, CIO at Amsterdam-based Philips Consumer Electronics, for an equal amount of time. But Sangen wasn't fooled. "I knew that with Hasso in front of me, I'd be happy if I got half an hour," he said. Indeed, that's about what Sangen got.

■ Attendees could be excused for wondering just what company Plattner and his fellow execs work for. On the honcho's new business cards, SAP's name is dwarfed by the mySAP.com logo of SAP's forthcoming e-commerce Web site. But Plattner said there's no Internet initial public offering in SAP's future: the cards were a little joke in keeping with the less stodgy image SAP is trying to cultivate.

■ To help get SAP's developers in the right frame of mind for the user interface makeover, Plattner said, the company began thinking of R/3 end users as real people with names like Jim and Mary. (Another SAP executive said the prototypical order-entry clerk who had to use R/3 got a more telling name: "The Victim.")

■ Maybe Europeans are just bashful about show-of-hands surveys. Or maybe it really does say something about the amount of online buying being done now. Whatever the explanation, when the moderator of a panel discussion on SAP's retail software asked how many people buy products off the Internet more than once per month, only one person out of about 200 raised her hand.

■ During the same session, the moderator jokingly asked one of the speakers — an executive from a Paris-based retailer — what was up with the weather in Nice after two straight days of rain. The Frenchman replied somewhat coolly that May was perhaps not the best month to visit the Côte d'Azur.

Translation: Those off-season rates just might be cheap for a reason. ■

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Dun & Bradstreet

Futurist Tells IT to Prepare for a Wired World

BY ROBERT L. SCHNEIER
SAN FRANCISCO

Software developers, hold on to your hats. Within five years, you'll be writing applications that must handle huge amounts of streaming audio and video, must easily recognize and work with applications running on different network protocols and must be compelling enough to tear couch potatoes away from the Super Bowl.

That's the advice former Bell Laboratories researcher Arno Penzias gave to several hundred developers at Software Development West '99 here last

week. Penzias, who shared a Nobel Prize in 1978 for the discovery of radio waves dating from the beginning of the universe, told developers to prepare for a world in which every device is networked and bandwidth is cheap. He didn't specify a time frame for these radical changes.



ARNO PENZIAS: Network interoperability is a "massive challenge."

Just as PC prices have fallen to the point at which some companies give them away to expose customers to online ads, voice and data carriers will almost give away bandwidth so they can push more compelling applications — and ads — at consumers, Penzias said.

As the size and price of computer components continue to fall, handheld network appliances will automatically record the time, place and details of business meetings and other events. "The record will keep itself," he said.

As low-cost digital cameras find their way into such devices, "the idea of urban anonymity will end" as strangers instantly identify one another through links to databases of names and faces, Penzias predicted. Casinos already use video-image recognition to spot top customers (and possible crooks) at the gaming tables, he said. "These things will all be inputs to the applications you people will write," Penzias told the developers.

Even low-cost appliances

will be networked because that will be the cheapest way to give them advanced features, he said. For example, a microwave oven would contain only rudimentary speech recognition — but would communicate with your PC,

"which knows how you talk," and would transfer that knowledge to the microwave, he said.

Allowing all those devices to communicate will be a massive challenge, he acknowledged, because the networked appli-

cations will communicate via everything from the Web's Internet Protocol to the voice networks used by telephone providers to PC-based standards such as Fibre Channel and Ultra SCSI. ■





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BRIEFS

Synapse Revamp

Industri-Matensell International Corp., a Swedish vendor with U.S. headquarters in Marlton, N.J., this week will announce a modular version of its order management and fulfillment applications. The software, Synapse, formerly called System ESS, has been separated into eight modules that can be bought and installed separately.

Pricing starts at \$200,000. www.im.se

SHYM Ships PKENable

SHYM Technology Inc. in Needham, Mass., has announced PKENable, tools that let applications snap in public-key infrastructure, reducing the time and cost of using public-key infrastructure-based security.

Pricing for an enterprise starter kit starts at \$10,000. www.shym.com

New Web Server

SilverStream Software Inc. has announced SilverStream 2.5, an application server platform for deploying and managing enterprise Web applications. It offers expanded connectivity to legacy databases and new databases from IBM, Microsoft Corp. and Sybase Inc., the Burlington, Mass., company said. The Solaris version supports Sun Microsystems Inc.'s Java 2.

SNAPSHOT

License, Please

1998 worldwide database
new-license revenue
market share:



■ IBM	32.3%
■ Oracle	26.3%
■ Microsoft	10.2%
■ Informix	4.4%
■ Sybase	3.5%
■ Others	20.9%
Total market: \$7.1 billion	

compliant Java Virtual Machine.

A development and testing environment for up to five developers costs \$2,500. Pricing for a Windows NT or Unix deployment server starts at \$10,000 for one processor. www.silverstream.com

Data Mart Tool for
MVS S/390 Released

QueryObject Systems Corp. has released Version 3.0 of its Query-

Object System data mart software for the MVS S/390 mainframe operating system. The new Query-Object engine can build multidimensional analytical environments directly on the mainframe and directly from typical mainframe

data sources such as DB2, Indexed Sequential Access Method and Virtual Storage Access Method, according to the Untersdale, N.Y., company.

Installation costs \$275,000. www.queryobject.com

BRIEFS

Portables Lighten Up

At its annual Worldwide Developers Conference in New York last week, Apple Computer Inc. announced new PowerBook portables that the company said are 2 pounds lighter and 20% thinner than previous models.

A PowerBook with a 333-MHz G3 chip, a 40-byte hard drive and a 56K mb/sec. modem is priced at \$2,499.

www.apple.com

Handheld Prices: Pains Down

Palm Computing Inc., a Santa Clara, Calif., unit of 3Com Corp., last week cut prices on two handheld models. The Palm III organizer now costs \$249, down from \$259, the company said. The PalmPilot Professional Edition organizer now costs \$149, reduced from \$199.

HP to Ship Storage Servers

Starting next month, Hewlett-Packard Co. will ship a line of HP SureStore CD/DVD-ROM network-attachable storage servers. The entry-level HP SureStore CD-ROM Server will let users share one to seven CD-ROMs. The HP SureStore CD/DVD-ROM Server includes seven drives that can read CD-ROM and DVD-ROM formats.

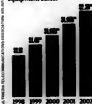
Pricing will range from \$2,750 to \$4,300.

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SNAPSHOT

Got the Picture?

U.S. videoconferencing equipment sales:



HP BOOSTS PERFORMANCE OF UNIX WORKSTATIONS

Vendor hopes to keep NT out of high end

BY JAIKUMAR VIJAYAN

WINDOWS NT is rapidly becoming the religion of the workstation market. But vendors of Unix systems are giving their users reasons to keep the faith.

Although corporate use of NT for such applications as computer-aided design (CAD), animation and mechanical CAD appears likely to grow, Unix vendors hope that recent rollouts will keep that operating system in the driver's seat when it comes to such horsepower-heavy applications as mechanical design automation and virtual prototyping.

This week, Hewlett-Packard Co. will announce three workstations based on the company's high-end, 64-bit PA-8500 RISC processor, which offers more than double the performance of systems based on the earlier PA-8200 processor.

The boost in performance comes from a number of new features, including faster clock speeds (the systems are based on 300-, 400- and 440-MHz chips); a 1.5M-byte, on-chip memory cache; a new HP chip set with 2G bytes of memory bandwidth, compared with the previous 1G byte; and support for HP's 64-bit Unix (see chart).

HP's systems come a week after Unix workstation rival Sun Microsystems Inc. boosted the performance of its boxes with newer, faster UltraSPARC chips.

Maintaining Its Lead

Such upgrades are helping those vendors maintain an edge at a time when Intel Corp.'s Pentium-based Windows NT systems are creeping ever closer to traditional Unix workstation performance, said Sarang Ghatpande, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y.

A study last year by International Data Corp. in Framingham, Mass., estimated that Windows NT workstation license shipments will grow at

an annual rate of 37.4% between 1997 and 2002, compared with a decline of 7.7% for Unix workstation licenses during the same period.

"Intel and NT have made giant strides" in the workstation market with systems based on chips like the Pentium II Xeon, Ghatpande said. "They are getting there with the performance numbers — but they're not quite there yet."

The sensors and electronics systems group at Raytheon Systems Co. is a power workstation user. Last year, the El Segundo, Calif.-based company used sophisticated Unix graphics technology from HP and Silicon Graphics Inc. to simulate an air traffic control system — with fly-throughs over the Alps and simulated bad weather conditions — for

■ **HP Visualize J1000:** 128M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$9,900

■ **HP Visualize C3000:** 512M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$13,900

■ **HP Visualize J5000:** Up to two CPUs, 512M bytes of RAM, 9G-byte hard disk, Visualize-EG graphics, 19-in. monitor. Starting price: \$22,700

the Swiss government.

The same application can theoretically run on Wintel systems at a much lower cost — but with nowhere near the same level of detail, the 60-frames-per-second response times or the reliability of Unix, said Howard Larson, a senior scientist at Raytheon.

"With NT, you'd have to bring down your level of detail or drop your light source, or slow [the application] down

drastically," Larson said.

Giving Unix systems the edge are the reliability of the operating environment, better scalability and the superior floating-point capabilities of RISC chips that are needed for running large design applications, according to Adrian Sammer, vice president at Engineering Animation Inc., an Ames, Iowa-based vendor of visualization software for manufacturers. ■

32G-BYTE SNAP SERVER

Meridian Data Inc. has announced a 320-byte version of its Snap Server network-attached storage device. The new model includes Version 2.0 of the Scotts Valley, Calif., company's software with an expanded feature set and supports Windows NT, NetWare, Unix and Macintosh platforms. It costs \$2,495 and is set to ship this month.

www.snapserver.com



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SLEW OF SECURITY TOOLS, SERVICES DEBUTS

New tools include risk scanners, Web broadcast security service, PKI tools

BY ANN HARRISON

A SLEW of security products was unveiled last week at the Network/Interop '99 show in Las Vegas. They include the following announcements:

■ **Internet Security Systems Group Inc.** in Atlanta released new versions of its risk management tools, including Internet Scanner 5.8 and Database Scanner 2.1.

Internet Scanner 5.8 offers new e-commerce vulnerability detection methods for the identification and elimination of security risks, including security weaknesses in Web servers.

Suggested pricing is \$2,795 for a 30-device license and \$4,995 for a 254-device license.

Database Scanner 2.1 includes added audit-log analysis functionality, which lets users identify unusual activity such as repeated failed log-in attempts caused by an attacker guessing passwords.

Database Scanner 2.1 costs \$995 per database server.

■ **Watchguard Technologies Inc.**, a developer of Internet broadcast security products in Seattle, announced its Watchguard LiveSecurity Broadcast Service. The service works in tandem with the Watchguard

Firebox Internet security appliance to broadcast information alerts to subscribers. Alerts include security news, responses to new threats and security software updates.

A free, one-year subscription to the LiveSecurity Broadcast Service comes with the Watchguard LiveSecurity System.

A connection to the LiveSecurity Network is available to service providers that offer a Watchguard-based managed security service using LiveSecurity for Microsoft Corp.'s SQL Server.

■ **Plano, Texas-based Entrust Technologies Inc.** announced an integrated log-in for Windows and Entrust/PKI software with the release of Entrust Enterprise Desktop Solutions 5.0, which is expected in

the third quarter.

■ **American Biometric Co.** said it's teaming with Entrust Technologies to develop the integrated Windows log-in capability for Entrust/PKI 5.0 and Entrust Desktop Solutions. Entrust/PKI 5.0 is also expected to be available in the third quarter.

Entrust will focus on increasing functionality and interoperability with Windows 98 and NT 4.0 platforms through the upcoming release of Entrust/Unity for Microsoft, which is slated for delivery this month.

Prices for all Entrust products weren't announced and will be subject to volume discounts. ■

MORE THIS ISSUE

For more coverage of Network/Interop '99, see News section.

Undergrad Develops CIH Virus Antidote

Makes it a free Web download

BY BANJIT SHIMH

One student invented it, but another has written an antidote to help users who lost data to CIH.

The CIH, or Chernobyl, virus that was created by former Taiwanese student Chen Ing-han wreaked havoc across Asia on April 26, infecting thousands of PCs in South Korea, Singapore, India, Bangladesh and China. U.S. computers were largely spared.

Last week, Monirul Islam Sharif, an undergraduate computer science student at Dhaka University in Bangladesh, said he created a cure for CIH. Sharif said he wrote the 70K-byte C-language program, which he calls MRECOVER, in 24 hours.

"I started working on it on April 27 when a friend brought his infected hard drive to me," Sharif said. "By the next day, it worked. Most of the data on the disk was recovered."

Sharif tried the fix on several other computers at Dhaka. He said the program also worked on those machines, recovering data to minutes.

"If your machine uses FAT32 [File Allocation Table], MRECOVER will recover all the data on the disk within three to four minutes," Sharif said. "But if your computer uses FAT16, then it will recover all data after the first partition, limiting the recovery to between 40% and 60%."

The antidote doesn't work on hard drives with a capacity of 8G bytes or more. Sharif said a version for machines that use FAT16 will be ready soon and will be followed by one for large-capacity hard drives.

Interested users can download the free program at monirulmoin.com/moredomain. ■

Singh writes for the IDG News Service in London.

New High-End Cisco Router Helps Users Manage VPNs

Users applaud data-gathering abilities

BY BOB WALLACE

Cisco Systems Inc.'s new virtual private network (VPN) routers sport several innovative features that will give information technology managers greater control over the performance and security of virtual nets.

The networking giant recently announced the high-end 7000 Series VPN routers, designed for use at corporate headquarters and at regional offices that need to support numerous, far-flung sites and/or remote users.

The routers offer firms such as the ability to monitor VPN performance data and to maintain encrypted tunnel sessions among routers even when no data is being transmitted, according to industry experts.

The 7000s handle tunneling, data encryption, security, firewall features, bandwidth management and service-level validation. Pricing starts at a very attractive \$22,000.

"This sounds like an impres-

sive all-in-one VPN device that, with built-in things like firewall functionality, would eliminate having to buy multiple boxes," said Eric Pytko, global infrastructure coordina-

tor at Eastman Kodak Co. in Rochester, N.Y. He said he would consider using the 7000s to support remote access and trading partners because buying a single device saves money and simplifies administration and management.

But what Pytko and analysts found unique to the 7000s is their ability to collect VPN performance data, which can be used to determine if service-level agreements signed with providers are being met.

"Service-level management is something that most every enterprise would want if they were going to base their wide-area network on a VPN," said John Freeman, an analyst at Current Analysis Inc., a Sterling, Va., consultancy.

He said Cisco is the first with that capability.

And Cisco's "keep-alive" feature is another first, said Matt Kovar, an analyst at The Yankee Group in Boston. It was designed to ensure routers don't drop encrypted sessions if data hasn't been transmitted for some time, he added.

The vendor's decision to

equip the 7000s with a module that uses hardware to encrypt packets will speed up that processor-intensive task and boost performance compared with rival products and earlier Cisco routers, Kovar said.

One 7000 software feature that caught analysts' attention is called Tunnel Endpoint Discovery, which automatically finds all VPN routers and configures tunnels among each device and every other device.

"This saves IT managers having to manually configure the tunnels, which can be a lot of work with large VPNs with numerous routers," said Jeff Wilerson, an analyst at Infocision Research Inc., a San Jose consultancy.

Tunnel Endpoint Discovery will simplify VPN deployment and is being offered by rivals Assured Digital Inc. and Xedia Corp., he added.

The 7000 VPN routers will ship in July. ■

MORE ONLINE

For resources related to virtual private networks, visit our Web site: www.computerworld.com/resources

- Tunneling
- Hardware-based encryption
- Triple Data Encryption Standard protection
- Firewall features set
- Embedded WAN, Fast Ethernet interfaces
- Supports up to 2,000 tunnel sessions at once
- Performance data reporting
- Tunnel Endpoint Discovery
- Multiprotocol routing



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DANCES WITH WOLFPACKS

NuView tames unruly Windows NT clusters for high-availability computing

BY CYNTHIA MORGAN

ORIGINALLY designed for high performance and scalability, clusters are rapidly becoming the cornerstone of high reliability in PC-based enterprises.

Microsoft Corp.'s own Windows NT cluster services, however, lag far behind their Unix counterparts in manageability and always-available operations. NuView Inc., a Houston software start-up, has produced a new type of cluster management software that could radically change the way information technology managers view NT network reliability.

A common concept in the Unix world, clusters are groups of two or more computers designed to behave as if they were a single unit. They're ideal for mission-critical systems on a network because one server can automatically take over for a failed server in the same cluster and prevent the network from going down at crucial moments.

And with the shrinking costs of PC-based servers, they're a fairly cheap high-availability solution.

Windows NT is infiltrating corporate enterprises at a rapid rate, even if it's not leading the charge to the network backbone. That has sparked great interest in Microsoft Cluster Server (MSCS) as a way to build in the high availability that NT manifestly lacks when it comes to mission-critical applications.

Tough Proposition

Unfortunately, setting up and using MSCS clusters properly isn't easy. Any number of things — servers and storage devices booted up or shut down in the wrong sequence, for example — can bring down an MSCS cluster or seriously impair its performance.

Wolf packs are territorial by

nature; MSCS — which began life code-named WolfPack — is no exception. While a single MSCS cluster can be administered reasonably easily once set up, MSCS offers little help for managing multiple clusters. IT support staff is often forced to manage each cluster as a separate entity, making it difficult to shift applications as

signed to one cluster to another.

Cluster enhancements in the forthcoming Windows 2000 will do little to alleviate those problems. Microsoft's Systems Management Server 2.0 doesn't specifically address managing multiple clusters from a single point with the possible exception of HP OpenView's new ClusterView software, there aren't many tools available that can.

NuView's ClusterX software tools consolidate multicluster management into a single,



NUVIEW PRESIDENT RAHUL MEHTA plans to extend company products throughout the mission-critical space

NuView Inc.

Specializing in high-availability enterprise tools, NuView is out to tame clusters first

Location: 230 Highway 6 South, Suite 150, Houston 77055

Telephone: (281) 497-0820

Web site: www.nuview.com

Niche: Tools to manage multiple server clusters in an enterprise

Company officers:

Rahul Mehta, president, CEO and founder

Milestones: Founded 1996.

First product, ManagerX, purchased by Hewlett-Packard Co. in 1997. ClusterX released in

Employees: 26 full-time;

hiring at least one per week

Profitability: Expected to become profitable in 2000

Burn money: Self-funded by Mehta

Products/Pricing: ClusterX for Microsoft Cluster Server (MSCS)

Partners: Data General and Dell Computer will bundle ClusterX with their high-end NT server products

Potential stumbling blocks: Although NuView plans to branch out into clusters on other platforms, its current MSCS focus could be a problem if Microsoft switches direction. In addition, the niche is too good. Clusters are becoming so essential to the high-availability enterprise that competition is bound to turn up. Finally, there's the "trustworthiness" factor. Small companies that can make a key Microsoft-related product better than Microsoft often wind up being purchased by — and have their technology absorbed by — the software giant.

Windows Explorer-like interface that lets network administrators handle service-level checks and problem resolution across the entire enterprise. It can perform automatic load balancing of critical applications across multiple clusters and includes an impressive array of application customization features.

Strategic Tuning

The package offers wizards for tuning clusters to work with popular applications and gives suggestions for redeploying servers and applications for maximum performance and reliability. The system offers snap-ins for use with network management systems such as HP's OpenView, Tivoli Systems Inc.'s TNG and Computer Associates International Inc.'s UniCenter as well as for Windows 2000's Microsoft Management Console.

ClusterX is the second product from NuView. The first, ManagerX, a Unix-like, around-the-clock NT application management system, was sold to HP in 1997.

Future Products

Nuview President and CEO Rahul Mehta said the company will concentrate on providing additional high-reliability management tools. The first order of business, he said, will be to add modules for managing non-Windows NT clusters to the basic ClusterX package. NuView also plans to expand the line to include high-reliability management tools for other critical network components such as routers and firewalls.

Although analysts predict that MSCS will enjoy widespread adoption during the next year, many IT managers still regard it as a minor player in high-availability enterprise clusters when compared with veteran Unix solutions.

NuView's initial foray into clustering is focused on the area where it's needed most — in the NT space. But any delays in bringing out Unix companion modules could slow its success.

Still, the company will bear close watching by any IT department with around-the-clock uptime requirements. And these days, that covers a lot of territory. ■



ClusterWorld

Microsoft Corp.'s paucity of cluster management tools has left wide openings for third-party offerings. One among them is veteran Hewlett-Packard Co.'s ClusterView, but start-ups are getting into the act, too.

An OpenView of Clusters

■ HP has extended ClusterView's high availability. HP-UX Unix support to include management capabilities for NT server clusters.

The product combines all cluster management functions into a single console, integrated into HP's OpenView/Network Node Manager. It directly supports Microsoft Cluster Server (MSCS) and many of the same monitoring and troubleshooting features as NuView's ClusterX.

But ClusterView's NT focus is primarily on monitoring clusters; some of the configuration management tools that make NuView a hot commodity in the clustering world. And its focus on OpenView and HP-UX limits its usefulness for enterprises that also use other network management frameworks.

Hewlett-Packard Co.
(800) 637-7740
www.hp.com/go/ha

Tuning for MSCS

■ Microsoft itself is nibbling to fill the cluster management gap. Last week Hewlett-Packard partnered in Las Vegas, it announced a partnership with San Jose start-up HolonTech Corp. to produce a Windows NT server-specific cluster manager. The HolonTech product, scheduled to make its debut later this year, will offer a hardware-assisted view of cluster management.

Based on HolonTech's existing switch designs, the new switch works specifically with MSCS. It can build clusters of up to 16 Web servers and attach them to other clusters in the enterprise.

Like NuView, it can manage multiple clusters from a single Microsoft Management Console and can offer methods for removing and replacing servers in a cluster without disrupting operations.

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Smart Phones: Please Hold

BY DAVID EBBERT

THE HEDYDAY of smart phones — which are cellular phones that can receive text and data — has been around the corner for a year or more. But this summer, you may finally see the blossoming of a crop of new, lightweight digital phones that let you manage contacts and schedules, check e-mail and even browse a scrunched-down version of the Web.

Until then, your choices are minimal. The closest thing to the next-generation smart phone is AT&T Communications' PocketNet Service (CW, Jan. 25), which can display e-mail on your choice of two phones that run the micro-browser from Phone.Com Inc. (formerly Unwired Planet), a key player in the smart-phone market. There's also a slew of wireless modems that link

phones to PCs and handsets that have optional wireless modems, delivering the wireless personal digital assistant (PDA) functions promised in the new phones. But those hybrids can be complicated to set up and awkward to use, a far cry from getting your contacts, to-do lists and e-mail beamed directly into one convenient device — the ultimate promise of smart phones.

Several phones that should put all the pieces together are expected to be out soon (see chart). Smart-phone efforts started to coalesce in March with the release of the widely supported Wireless Application Protocol (WAP) 1.0 and announcements at the German trade show, CeBIT. There, cell-phone biggies Ericsson Inc., Motorola Inc., Nokia and PDA maker Psion PLC said the Java Internet language

would be built in to wireless devices.

And Microsoft touted Web phones from Acer Inc., Philips Electronics NV, Daewoo Telecom Ltd., Nortel Networks, Panasonic Communications & Systems Co. and Vestel Information Appliances Division, all sporting 640- by 480-pixel screens. The phones run Windows CE, Microsoft's operating system for handsets, and are also due by year's end.

But 1999 may be more the year of prime hype than prime time, according to Gartner Group Inc. research director Bob Egan, who calls the new phones "market experiments." The bottom line is that smart phones won't get their act together for another year or two.

Besides the AT&T PocketNet and external modem-dependent products reviewed earlier, only two U.S.-compatible smart phones

were available for testing: the latest upgrade of Nokia's 9000 Communicator and Motorola's brand-new StarTAC Mobile Organizer, a mini-organizer card that attaches to the back of a StarTAC phone.

I found that they deliver much of what others only talk about. ■

Essex is a freelance writer in Antrim, NH.

IN THE WORKS

Out in Summer

Better integrated and more-functional devices on the way: HGS NeoPoint 9000, Sugar PDA Inc. modem and Web on a flip-top phone.

Motorola 9000i page and two-way radio.

Qualcomm p02c Palm PDA on a phone, with lots of proprietary content management.

Samung SCH-4000: Flip-top Web and wireless data phone.

Nokia 9000i Communicator

Nokia

www.nokia.com

\$699

Nokia's all-in-one wonder is a heavy, brick-size cell phone with a PDA switched between its front and back, uniquely integrating contact lists, to-do and calendars with the standard tools of digital communication.

In two days, I used the 9000i to send a fax, browse the Web, read and receive e-mail, make wireless phone calls and control my home-office answering machine.

The "T" stands for light, as in the highlighting that previous models were criticized for lacking. In a dim room, the 9000i would be barely readable without it. Outdoors, its easy monochrome LCD is easy on the eyes thanks to plain, bold print. Web pages are another story:

symbols are reduced to cryptic graphics and scrolling through pages is slow and disorienting. Still, it's adequate if you need to read information off Web pages and can't get to a full-size PC screen.

With small, shallow keys, the 9000i isn't for writing more than telegraph-style messages, though you can use a serial link to import larger files.

Sometimes, its hybrid nature is a handicap: The touch tones sent to my answering machine had to be entered on the PDA keyboard, which required awkward handling as I switched between the open PDA and the earpiece on back.

There are so many communication types that the learning curve for the 9000i is steep, and setup can be a pain. Uploads and downloads take about twice as long as you may be used to.

The 9000i is worth trying if you need all your everyday means of communication handy. For a subset — such as voice, e-mail and Web access — consider one of the more streamlined Web phones, such as the AT&T PocketNet phone or the soon-to-be-released NeoPoint 9000.

StarTAC Mobile Organizer's ergonomics, portability and simplicity make it practical for daily use.

StarTAC Mobile Organizer

Motorola Inc.

www.motorola.com

\$250 (phone is

\$334.95 to \$324.95

without service)

(PDA sold with one of

these organizers).

Motorola's flip-

top StarTAC phone

hardly qualifies as

smart, save for the ability

to snap phone members and

organizers. But superior

ergonomics, portability and simplicity

make this organizer a member

of the portable daily pack. It lets

you manage contact names and

phone numbers right where you

need them — on the phone itself.

The organizer gets ample input

from a finger side of seven rubber-

ized buttons (reversible for left- or

right-handed use) by a quick flip of

the display) and a monochrome

LCD interface that avoids needless

text entry with well-placed pick lists. Like the players' initials screen in a video game, you have to scroll through the alphabet to select letters, but I found it easy to enter a name and phone number in less than a minute. The standard calendar, to-do, contacts and keypad are replace with crumbly and alarms. A PC serial cable and StarTAC Software Inc.'s TrueSync provide data exchange with personal information managers and connected PDAs, but they weren't included in my beta unit.

The Organizer is a quick fit if it's the PDA part of smart phones that intrigues you. It puts your cell phone and contact information in two devices, which saves you the hassle of carrying a separate PDA for that one purpose (though for to-do and calendars, it's an awkward alternative to pre-installed PDAs like the PalmPilot, which are more powerful and user friendly).





"At Cisco Bootcamp we learned multi-protocol routing. Configuring IP was a bit familiar. But we also needed to configure IPX and AppleTalk, which was completely foreign to me. Through a lot of troubleshooting and working along with my teammates, we got the whole network up and running."

*— Mark, age 17,
Cisco Networking
Academy student*

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Transaction Servers

BY CHERYL GERBER

A TRANSACTION server sits right in the middle of a system, managing transactions as they zoom around different networks.

The transaction server is responsible for maintaining high performance, availability and data integrity. It also makes sure that no computer has too much or too little to do.

When a transaction server sees that one computer has been sent too much work, it automatically divides the work among all available computers, pooling resources to prevent any one machine from crashing.

When it updates databases, a transaction server also performs what's known as state management. If it senses that

DEFINITION

A transaction server manages business transactions. It sits in the middle, between the client and the server and acts as a glue, holding essential data processing activities together. It allows huge amounts of information to remain accurate and ensures transactions are completed without interruption or data corruption.

a computer can't complete a transaction, it makes the software back out and return to its original state without data corruption.

"You don't want half processes. You need to have both databases completely updated or, if the process fails, to back out as if the transaction never occurred," says Ed Acly, an analyst at International Data Corp. in Framingham, Mass.

A Process

A transaction server is considered more of a process than a concrete piece of hardware or software.

It's becoming increasingly rare to see a transaction server sold as a separate product, says Morgan Gerber, an analyst at Meta Group Inc. in Burlingame, Calif.

It's either part of a computer's operating system or part of the middleware — software that sits between a smaller computer, called a client, and a larger one, called a server. Middleware makes

sure that when the clients request information, the servers provide it, even though they might be based on different computing platforms.

One of the fundamental characteristics of middleware is independence and openness. It's a generalized infrastructure to which a lot of tools can be applied, Acly says.

Back in the days of the mainframe, the transaction server

was called a transaction monitor. It expanded beyond mainframes to take on the role of administering distributed object-oriented applications in client/server computing.

Object-oriented computer programs are based on software rules that allow little chunks of programs to act as independent objects that work together through the messages passed among them. They are

modular and reusable, so programmers don't have to repeatedly write the same objects. They can also swap out one object for another without having to rewrite the entire program.

A transaction server working as middleware also solves a unique problem: At first there were only clients and servers, but "there was never a place to execute applications. It was always jammed into the client or into the back-end database," Acly says. Middleware fills that gap between the client and the server.

Encapsulates Infrastructure

Wherever it resides, the transaction server encapsulates the underlying infrastructure of a program. It provides an environment in which the software developer doesn't have to write underlying code in order to write an application.

In the future, it's possible we may not even use the term transaction server because it's functions will be rolled into other products. ■

Gerber is a freelance writer in Kingston, N.Y.

AT A GLANCE

Transaction Server Applications

Transaction servers are best suited to secure, high-speed applications such as:

- E-commerce
- Stock market trading
- Airline reservations
- Credit-card verification
- Online banking transactions

Are these technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stephanie McCom at stefanie.mccom@computerworld.com

MORE ONLINE

For more information on transaction servers, visit our Web site: www.computerworld.com/news

Additional Types of Middleware

Besides transaction servers, there are five other types of middleware:

- **Legacy**
Puts together and accesses "legacy" applications — older applications that use different technology than the newer systems installed at an organization
- **Data Access**
Provides synchronous connections among applications and different types of databases to supply the requested data
- **Remote Procedure Call**
Provides a link between the requesting application and a remote application
- **Message-Oriented**
Applications make requests by passing messages directly to middleware with guaranteed delivery. Messages sit in the queue, calling for action and supplying the input needed for that action
- **Object-Oriented**
Supplies and manages communication among distributed objects, which are self-contained, reusable program modules

SOURCE: META GROUP INC., DATA CORP.
ILLUSTRATION: MORGAN GERBER



This conceptual drawing shows the transaction server sitting between the central server and three clients. In the model it's acting as the middleware layer and is:

- Maintaining performance and availability
- Protecting transactions
- Preventing data corruption
- Load balancing to prevent systems from overworking

ON THE WEB,

AS R



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COMPUTERWORLD
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In Which Our Intrepid Reporter Endeavors To Install Linux ...

(... and lives to tell the tale!)



BY DAVID ORNSTEIN

UNLESS YOU'RE AMONG those folks who know their Posix from their Mixix and their grep from their awk, you might find that Linux is free but not easy. Without Unix expertise, you might pay a price in time spent struggling with Linux's more arcane side.

I've been using Linux and reporting on it for several months, but my 17-year personal computing heritage comes more from Commodore, DOS and Windows. Still, I've been able to develop some computing savvy. Setting up a functional Linux workstation took every last drop of it.

If your organization similarly lacks Unix expertise, you too might need a few solid days to get Linux running. Now that I'm comfortable with Linux, I enjoy working with it. To its credit, the operating system did many things, such as detecting hardware and setting up its directory structure automatically and easily. Still, working with Linux requires patience and guidance. Here are a few rules to keep in mind:

Rule 1: Don't Try Linux on a Junky Old PC

I threw Linux on an old PC with a few spare parts lent by the information technology department. Although this didn't cost a dime, it was a lousy way to give Linux a chance. With a graphical user interface (GUI) such as Gnome, guided by the GNU project of the Free Software Foundation Inc., Linux wants at least a Pentium 166, 48M bytes of RAM and 500M bytes of storage.

Because I needed to save space, I was forced to become intimately familiar with Linux's system of packages — software components. Packages are inscrutably named (much like Windows Dynamic Link Libraries) and have intricate networks of dependencies, which are other components that must also be installed for them to run. I had to navigate this minefield to safely find and prevent the installation of superfluous software without ruining any dependencies. Once that was done, I struck a problem endemic to all Linux distributions that's particularly icky on older computers: Linux Loader, or Lilo.

Lilo ostensibly lets you boot Linux or other operating systems, but it will freeze if your boot partition has more than 1,024 cylinders. At 540M bytes, my drive was too large. My older PC doesn't boot from CDs, so I had to make a Linux boot floppy in Windows — which is about as pleasant as it sounds.

Rule 2: Learn To Love the Command Line

The command line is still needed for many simple tasks, such as finding out how much hard drive space is left. But it can also keep you running. Linux GUIs can lock up with little provocation. Thank goodness Linux lets you

call up a command line when the pretty pictures freeze.

Many programs need the command line because they include numerous options. Decompressing downloaded software involves the command "tar." To install America Online Inc.'s Instant Messenger for Unix, for example, I had to type: `tar-xmfrik-0.6.7tar`.

I'll take a point-and-click, self-extracting-executable next time, thanks.

Rule 3: GUIs Aren't Consistent

The land of the friendly GUI isn't so friendly. In the beta version of Gnome, the authors integrated three different help systems in a browser, but the browser doesn't let you print, cut and paste or search. I needed help often, so this was maddening.

Not all windows are resizable, and window resizing becomes especially crucial in Linux GUIs, which commonly feature four separate "virtual desktops." Essentially, these are extra desktop screens. The idea is to give you more — but you can get caught in limbo between screens. If a window opens on one screen but spills onto another, you may be caught flipping between screens. In some cases, the flipping prevents you from being able to work with the window. Eventually, I changed the settings to eliminate the other desktops. But some windows still open partially off the screen and must be dragged back on and resized, if possible.

Rule 4: The Network Might Not Work

Computerworld system specialist Chris Flynn and I had plenty of trouble setting up the Ethernet connection in Linux. With insufficient guidance from Red Hat Software Inc.'s installation guide and a copy of *Linux for Dummies Quick Reference*, we even struggled to set up the Dynamic Host Configuration Protocol network. Linux doesn't support a tremendous number of Ethernet cards, and managing the needed low-level system settings requires a lot more study in the black art of the command line.

We threw Durham, N.C.-based Red Hat for a loop when we sought support for the admittedly unusual task of making Linux a client of a Windows LAN. By press time, we were able to get a time-stamped response from the NT file server, but we couldn't log on or view the file system. Windows was literally willing to give Linux the time of day — but nothing more.

Ultimately, giving Linux the time of day is worthwhile. It's up and coming, and it's better to wrestle it down to the ground now than to be overwhelmed by it later if it becomes an imperative you're not prepared for. Besides, each new commercial version of Linux is getting easier to use — so there's less pain in your future. ■



UNDERHILL'S RANDY ERDAHL
"We estimate that we're saving
close to \$3 million per year
through mainstream optimizing."

MINING YOUR BU

DATABASES and data warehouses are filling up with information from a variety of applications — from enterprise resource planning systems to retail customer checkout scan cards.

What to do with all that data? Some companies are turning to data mining tools that can perform regression, decision-tree, neural network, cluster detection and market-basket analysis to highlight patterns, show customer tendencies, cut redundant costs and uncover unseen profit centers.

A recent Computerworld survey found that companies now using or planning to use data mining expect the number of mining users to triple in the next year. A similar, Forrester Research Inc. poll found that four times the number of projects currently active are planned to go live this year.

Those projects help companies target their resources by finding more profitable ways to perform direct mailings, better schemes for displaying in-store products, untapped profitable customers and warnings about which customers are about to jump ship to competitors.

Users who have started to mine their own data say there are several keys to success: coming up with fine-grained and clean data, knowing what kind of tools you need and having a small, skilled staff to handle the model building. It also helps to have a marketing person on board who knows the business inside and out. As one data mining

project leader put it, "You want someone who's been out there selling bibles to old ladies since they were 15."

USER COMPANY: Fingerhut Cos., a \$2 billion mailer of 400 million catalogs per year.

GOAL: To create specialized catalogs and optimize mailings to secure the highest possible revenue from the more than 1 million catalogs it mails each day.

MINING SOFTWARE: Segmentation, decision-tree, regression analysis and neural modeling tools from SAS Institute Inc. and SPSS Inc.

Perhaps you're one of the 7 million active Fingerhut customers who have ordered toys, games or household items from one of its catalogs. If so, your order information is part of a 1.5T-byte collection of transaction, demographic and psychographic data being held in an IBM DB2 relational database at Fingerhut headquarters in Minnetonka, Minn.

"We keep up to 3,000 potential data elements for each customer. And since we have such a huge volume of data, we've struggled with archiving it and running queries against it with any reasonable speed," says Randy Erdahl, group manager for corporate research and analysis at Fingerhut. "We wanted to look at data sets and subsets easily, and we were looking for ways to create customer models with less effort."

Fingerhut's bread-and-butter mining applications are a segmentation model and a mailstream optimization model. The segmentation model combines order and basic demographic data with its product offerings. By doing so, Finger-

hut can create new, targeted mailings. For example, Erdahl and his team found that customers who have recently moved tripled their purchasing in the 12 weeks after the move. So Fingerhut created a "movers" catalogue featuring furniture, telephones and decorations — but without jewelry or home electronics.

Its mailstream optimization mining model shows which customers are best-suited to receive existing catalog mailings. Mailing out 400 million catalogs per year sounds anything but targeted, but Erdahl says mining has taught the company that it can send out fewer — but better optimized — mailings without seeing a revenue decline. "We estimate that we're saving close to \$3 million per year through mailstream optimizing," he says.

The neural-mining models have been used to help highlight overlapping patterns of mailings and order-filling phone calls so that proper phone staffing can be predicted to handle heavy order loads. Fingerhut purchased a spread of mining tools because they adapt to a range of model types: SAS for its regression-analysis tools and SPSS for its neural-modeling tools.

Erdahl says mining data from e-commerce orders will be the next technology challenge at Fingerhut. "It can be difficult because you don't start out with the level of detail we currently get about who is looking at each thing. There are behavior patterns we can follow and demographic data we can get, but it isn't always easy to match the two for e-commerce. We're very interested

Mining Your Business, page 96

We wanted to better segment our customer file [in order to target mailings better].

LARRY SHAW,
VICE PRESIDENT OF MARKETING,
VERMONT COUNTRY STORE

Data mining tools help companies boost sales and save money by better targeting customers

By Stewart Deck

BUSINESS

MINING YOUR BUSINESS

Continued from page 95

in this area, but we're still learning about the best ways to approach it," he says.

USER COMPANY: American Century Investments, a Kansas City, Mo.-based mutual funds provider with 2 million active customers.

GOAL: To better understand customer behavior to retain customers, cross-sell services and improve target direct-marketing.

MINING SOFTWARE: SPSS Inc.'s Clementine, Kobon and SPSS Base.

Armed with five years' worth of transaction data about its mutual-fund customers, American Century wanted to locate identifiable patterns in its customer base.

"We wanted to understand [customers'] financial behavior so that we could serve them better and thereby keep them loyal to us," says Stephen

Cole, assistant director of research and development at American Century, which claims to be the fourth-largest retailer of investment funds in the U.S.

Cole and his four-person analysis team put together a comprehensive survey of 2,300 customers and their financial assets to test a hypothesis. The group believed that people fit into four general investment behavior categories, which range from complete self-service to full service. Data mining helped the team recognize behavior patterns; the company now uses those patterns to tailor direct-mail offerings and customer support.

"By asking callers three questions, our phone operators can [determine] what kind of investors they are and begin giving them the type of assistance they want," Cole says. "We've had several people move substantial resources to us because we understood them this way."

Using the mining models to target

potential customers via selected services and marketing materials, direct-mailing responses have risen from below 1% to 3%.

In the past, a 1% response rate would have raised cheers in the marketing department, he says.

The SPSS tools were brought onboard because they made it easy to set up mining models and were very adaptable to different data environments, Cole says. In fact, institutional challenges outweighed any technology troubles at American Century. "Everyone faces data cleaning and missing data issues, but the right software can handle that," he says. "We also had to make sure our data was structured and granular enough and broken down into the decision-making ones."

Most difficult of all for Cole and his team was convincing traditional market researchers that it all could work. "There were a lot of people who thought our team was smoking rope," Cole says with a chuckle. "Traditional marketers will not support this type of project a great deal [so] you have to proceed without them. It's more important to move into this new realm of massive amounts of data and pattern recognition."

"What we did turned this business upside down by blowing away assumptions about our customer base. It told us to start thinking latitudinally and calibrating our offers across product lines," he says. "We had assumed our customers were monolithic, but they were very dynamic — and a lot more flexible than we thought. Now we can plan a series of offers for them instead of just a handful."

USER COMPANY: Black Rock Inc., a New York-based investment house and provider of mortgage-payment data to financial institutions.

GOAL: To understand its mortgage customers' prepayment behavior to predict which borrowers are likely to refinance or pay off a mortgage early.

MINING SOFTWARE: Silicon Graphics Inc.'s MindSet.

Refinancing a mortgage or paying it off early are wins for everyone, right? It isn't for the bank holding the mortgage now for mortgage-backed securities investors. Banks plan on that steady, 30-year stream of income — and they tend to get a bit jumpy when their mortgage customers refinance with someone else.

Banks want to know which of their customers are likely to jump ship or close the loan early so that other services or inducements can be made to entice them to stick around. As a data provider that invests in mortgage securities and provides data mining services to banks, Black Rock is just as interested in those customers' tendencies.

Black Rock combines credit history data received from banks, public demographic data and mortgage information in a large, Sybase Inc. database. It tracks individual bank customer information for three years and tracks 1,500 variables for each of those customers — all of which adds up to 800G to 120G bytes of data.

"Checking every variable would be time-consuming. We need to be able to plow through the data quickly," says Afshin Goodarzi, vice president of data modeling at Black Rock. What Goodarzi and his analysts look for are combinations of factors that indicate a mortgage customer is about to make a change. Of the 1,500 factors tracked, around 120 are what he calls "golden." Capturing, combining and analyzing them turns up good results, he says. Two examples of golden factors: If a customer has several accounts at his bank, he isn't likely to look elsewhere to refinance. Likewise, if he has a history of delinquent payments, he's less likely to pay the loan off early. But Goodarzi says the mining is far from that simple.

"We use MindSet because of the algorithms it has for tree building, straight regression analysis and clustering analysis," Goodarzi says. By applying that kind of analysis, he says, Black Rock has shown its bank clients how to retain up to 15% more customers.

But the project wasn't a stroll in the park. "We started with a series of flat files instead of a relational database," Goodarzi says. "But moving and trying to slice 800G [bytes] of flat file data is a pain. Data is easier to move in a [relational] database. A [relational] database helps with data aggregations, data granularity and assists in finding basic similarities."

Mining Your Business, page 98

Checking
every variable
would be time-
consuming.
We need to be
able to plow
through the
data quickly.

AFSHIN GOODARZI,
VICE PRESIDENT OF DATA MODELING,
BLACK ROCK



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MINING YOUR BUSINESS

Continued from page 96

Goodard's mining project advice? Make sure you have integrated mining and data visualization tools, make sure your platform has sufficient horsepower to handle what you're about to throw at it — and plan to ask lots of questions. "Think of five questions you want to ask, then five more and five after that. The more you ask, the better you'll understand what you're looking at," he says.

USER COMPANY: Axios Data Analysis Systems Corp., a Monterey, California-based provider of high-level strategic analysis for health care providers.
GOAL: To analyze data warehouses in order to provide data insights, including financial fraud and clinical outcomes for health care organizations.
MINING SOFTWARE: Thinking Machines Corp.'s Darwin, SGI's MindSet.

In large health care organizations, the effect of a small decision in one wing can have a ripple effect on other divisions. But big corporations' structures work against a well-thought-out decision-making process. "The impact of cross-departmental decisions is often unseen because nobody's looking at the whole picture," says Dr. Andrea Allmon, senior business analyst at Axios.

For example, reducing mental health expenditures might lead to an increase in emergency room costs. And cutting pharmacy costs sounds terrific until it causes a rise in medical expenses or a membership decline. Axios provides such scenarios to health care officials by combing through an organization's data warehouses for trends and business insights, Allmon says.

Axios imports a warehouse full of claims, membership, provider and financial data from hospitals — up to 800G bytes' worth. Its team of business analysts then works through the data using a collection of mining tools and statistical processes. "Some vendors like to sell their [mining] tools as push-button magic boxes, but when you're looking at sophisticated analytics such as profitability or fraud detection, you need an integrated statistical approach and people with good stats backgrounds," Allmon says.

Its tool set includes Darwin from Thinking Machines and SGI's MindSet. "We chose Darwin for its broad range of [mining] models that can be easily integrated with an automated system and ported to Java. Darwin is also great for statistical analysis and is designed

for users with in-depth analytic backgrounds," says Robert Cura, chief technology officer at Axios.

Axios bought MindSet for the data visualization it provided. "That's SGI's strength," he says. "Sometimes it's easier to look at some data when you have it in a 3-D model."

But having the tools and people smart enough to use them won't automatically produce good results. "You have to understand the business behind the mining project to understand the data you've been given," Cura says.

"Data mining isn't an inherently intelligent process by itself. You have to put the intelligence into it," Allmon agrees.

USER COMPANY: Vermont Country Store, a retail and catalog company with 3 million catalog customers and yearly sales of \$50 million.

GOAL: To learn more about its customers in order to optimize catalog mailings and sales.
MINING SOFTWARE: SAS Institute's Enterprise Miner.

Vermont Country Store may sell old-fashioned and hard-to-find items, but its steady sales growth is anything but retro. The catalog now reaches 3 million households and has helped the company count steady sales increases of 10% annually for several years.

But it wanted to better target its mailings and make each one more profitable. So it began to look at ways to use the 10 years' worth of marketing data it kept in an Oracle Corp. database. "We knew how much people spent and how often they were buying items, but we wanted to better segment our customer file" in order to target mailings better, says Larry Shaw, vice president of marketing at the Manchester, Vt.-based retailer.

Using SAS's Enterprise Miner to perform regression, neural network and decision-tree analysis on buying patterns and responses, the retailer was able to spot seasonal shopping trends and specific product categories that it could better target to specific customers. It applied statistical models to three seasonal mailings and saw sales increases between 2% and 12%. "We chose the SAS tools because they were user-friendly but still gave our users flexibility and control," Shaw says. "SAS also had extremely good customer service, which was very appealing."

Some smaller companies might be wary of how expensive mining tools can be, but Shaw says even his most conservative sales increase estimates show a phenomenal return on investment. Even if his company sees a sales increase of only 2.86%, the smallest increase it has currently measured, that projects a return on investment in the tools of more than 1,000%, Shaw says.

The retailer declined to divulge the project's cost. Enterprise Miner pricing starts at \$60,000. ■

FAST FACTS

Applications based on data mining technologies are still on the immature side — but you may see them grow up in the next year. Computerworld last month surveyed computer managers who said they were using or were planning to use data mining applications. Almost half said they were still in the planning stage; only 15% had applications in full production. However, almost all of the respondents expected to have at least a few data mining tools in production a year from now.

The telephone survey offered a glimpse into how young data mining implementations are and how quickly information technology managers expect them to develop. The research, conducted by the Computerworld IT Intelligence Unit, included interviews with 77 managers at companies with more than 500 employees. The respondents' sites averaged 4,885 employees.

The managers interviewed said they expected a better than three-fold increase in the number of their employees using data mining technology in the next year, jumping

from 72 workers to 254 employees on average. The respondents also expected to see payback from data mining in several areas, but weren't sure they were already receiving benefits.

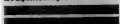
There also was a significant amount of uncertainty about whether users are happy with their current data mining tools. A majority were neutral, or didn't offer an opinion, when asked to rate their satisfaction with data mining tools. Those who did rate them generally gave vendors good grades on the availability of applications and tools: 38% said they were "satisfied" or "highly satisfied." That percentage dipped into the low-to-mid-20s when managers were asked about "time to maintain applications," "time to deploy applications" and "time to develop applications."

It appears today's data mining tools market is a very fragmented sector: The 77 respondents named more than 25 different vendors, with no single vendor collecting more than eight mentions.

— James M. Connolly

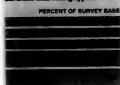
Growing User Base

Average number of employees using data mining today and how many are expected in a year:



Still in the Works

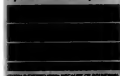
Status of respondents' most advanced data mining applications:



(BASE: 77 SITES)

Picking Up Speed

Expected data mining implementation status in a year:



(SOURCE: COMPUTERWORLD IT INTELLIGENCE UNIT. FIGURES BASED ON 77 RESPONDENTS. FIGURES ARE IN PERCENTS OF 17,000 EMPLOYEES OR MORE.)

Ideas and Execution

Which group is most involved in initiating your company's data mining ideas?



Which group is most involved in executing and managing these applications?



Eyes on Future Benefits

Companies receiving benefits from data mining applications today and those expecting to receive benefits 12 to 24 months from now:



Technology Happenings

- **Dendral**, the first medical diagnostic program, is created at **Stanford University** by **Joshua Lederberg**.
- **Data General Corp.** is founded by **Edson DeCastro**, former PDP-8 chief engineer at **Digital Equipment Corp.**, and other Digital engineers.
- On Sept. 28, **Raymond Schoofield** stands naked in front of the **IBM** building in **Albany** holding a sign that reads, "Computers are Obscene."
- **Edgar Dijkstra** introduces the concept of **structured programming** and declares that **GOTO** statements should no longer be used.

In Space

- **January**: The **Surveyor VII** space probe makes a soft landing on the moon. This is the last U.S. unmanned exploration of the lunar surface.
- **October**: The first manned Apollo spacecraft, **Apollo 7**, takes off with astronauts **Wally Schirra**, **Denn Feltgen** and **Frank Borman**.
- **December**: **Apollo 8** is launched from **Cape Canaveral, Fla.**—then known as **Cape Kennedy**. During the mission, which lasts 6 days, 3 hours and 42 seconds, **Frank Borman**, **James A. Lovell Jr.**, and **William A. Anders** become the first humans to circle the moon, orbiting 10 times.

Born in 1968

- **Gillian Anderson**, *Dana Scully* on *The X-Files*
- **Amy Carter** (now *Amy Poehler*), daughter of **President Jimmy Carter**
- **Lucy Liu**, *Karen*, *Wisteria* Princess
- **John Orlister**, "Mike" in the *Real* television commercials
- **Sammy Sosa**, *Chicago Cubs* slugger

Other Notables

- **Widespread protests** continue against increased U.S. military participation in **Vietnam**.
- **60 Minutes**, now television's longest running prime-time news magazine, debuts on **CBS**.
- **New cars** must be equipped with **safety belts**.
- **Stanley Kubrick's** 2001 *Space Odyssey* is released, introducing the world to **HAL 9000**, the computer that runs *amok* and kills people in space.
- **Best Picture**: *Oliver!*

Inside Intel

BY LESLIE GOLF

GORDON MOORE still has a bottle of **Napoleon brandy** signed by the gang that helped get **Intel Corp.** up and running in 1968. The company co-founder and chairman emerges from the bottle by wailing that by the end of that year, all the manufacturing gear for making semiconductor memories would be in place and the process would be ready to go. On New Year's Eve—only a week after a flood from a broken pipe threatened to shut the operation down—the group completed the groundwork. Moore threw a party for the bet's losers, and Intel has been beating the odds ever since.

Like many early **Silicon Valley** start-ups, Intel was born of **Fairchild Semiconductor**, which Moore, integrated-circuit inventor **Robert Noyce** and six others launched in 1958 [CW, March 8]. Frustrated by management crises at **Fairchild**, Moore and Noyce decided to strike out on their own once again to form a company that would research, develop and manufacture "integrated electronic structures."

Gordon Moore recently spoke with *Computerworld* about the early days at Intel.

Q: What was your original vision for Intel?

A: We wanted to make complex integrated circuits. And we

saw semiconductor memory as the place to get started. But our vision didn't go that far. As a start-up, we were more concerned with short-term survival. We figured we had to get to \$25 million in revenues in five years—that was the vision. And we were \$53 million in five years, so we met that comfortably.

Q: Potential customers such as IBM and Digital Equipment Corp. weren't interested in microprocessors. What kept Intel going until they took notice?

A: It was all these embedded applications. The microprocessor was showing up in all kinds of things you would never have imagined—it offered an easy way to do programmable logic, and that is still the majority of microprocessor applications today.

Q: What were some of the early applications?

A: A lot of funny things—some guy automated his chicken house using one of our microprocessors. I don't know what an automated chicken house does, but that was certainly creative. There was a marijuana sniffer that could replace drug-sniffing guard dogs. Then there were important ones—like blood analyzers. And early in the game, people started looking at them for automotive applications—Buick built a cruise control using one.

Q: Did you ever think the whole

thing was going to tank?

A: Surely not in '68. If you talk to **Andy Grove**, current chairman and Intel's fourth employee, you get a different view. But I had been through two start-ups before, and Intel was so smooth—everything worked well. For him, it was his first, and he was closer to a lot that had to happen. And he considers it the most trying time of his life.

Q: What do you recall about Grove's early management style?

A: Even though he had a strong technical background, he got much more interested and involved in organizations and how they were run. Have you ever heard about **Andy's "Sign-in List"**? I was complaining that we couldn't get a meeting going until 8:30 a.m. So he had the idea that anyone who entered the building after 8:06 a.m. had to sign a list. If you got to the

parking lot at 8:03 or 8:04, you would run to the building so you wouldn't have to sign the list. Even I did it. When **Andy** became president, he got rid of it. It was innocuous—but there were no consequences of being on the list—but it had a significant psychological impact.

Q: Outside of technical issues, what are some of the things Intel did early that are still reflected in the company today?

A: We developed a strong corporate culture almost from the beginning that tried to let people with greatest technical knowledge make the technical decisions. We haven't over-directed from the top. And we've always tried to hire the best people. The management team has all been people we hired early in their career, and that has given us a consistent culture that's very powerful. ■

Golf is a frequent contributor to Computerworld. Contact her at lgolf@ix.netcom.com.



GORDON MOORE (pictured) and **Robert Noyce** founded Intel to research, develop and manufacture "integrated electronic structures"

Civil rights leader Martin Luther King Jr., 39, is assassinated in Memphis. One week later, President Johnson signs the Civil Rights Act of 1968.



Sen. Robert F. Kennedy is shot in Los Angeles after winning California's Democratic presidential primary. He dies the next day.

The Motion Picture Association of America adopts a film-rating system—G for general audiences, M (later PG) for mature audiences, R for restricted audiences and X (later NC-17) for adult patrons only.

JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

Preliminary Vietnam peace talks begin in Paris.

The U.S., Britain, the Soviet Union and 58 other nations sign the Nuclear Nonproliferation Treaty, barring the transfer of nuclear weapons to other countries.

Richard M. Nixon is elected president, defeating Vice President Hubert H. Humphrey and third-party candidate George C. Wallace.

Team Spirit

Want to make a splash with SAP? Better brush up on your people skills
By Kim Fulcher Linkins

IN HIS "MENTATION 17" (For Whom the Bell Tolls), John Donne wrote: "No man is an island, entire of itself; every man is a piece of the continent, a part of the main." That aptly sums up the way SAP professionals describe their work within a company.

"It's such a big system and so tightly integrated," says John French, a programmer/analyst at Baldor Electric Co. in Fort Smith, Ark. (john_french@baldor.com). "You have to work really closely with the rest of the team members over the other functional areas because what you do may affect what they're doing. You're no longer an island."

Experts agree that to be successful in SAP, professionals need people skills (like the ability to pull together people from diverse backgrounds, cultures and countries), communication skills and flexibility.

"I have seen consultants actually get turned down for positions, because they have a difficult time on the communication side," says Billy Huntley, an independent consultant in Hastings, Mich. (HuntleyB@GEOX.com).

As for gaining SAP skills, information technology professionals who already have the expertise surprisingly don't always recommend attending organized SAP classes.

"There's quite a few people who I've worked with who get their experience on the job," Huntley says. He recommends that a seasoned programmer look for a company that will hire him with his current programming experience and then let them gain SAP experience on the job.

However, "if you're coming out of college or you don't have a lot of experience programming, about the only avenue that you have open to you

is to take SAP training courses. You'll start out at a much lower rate, but you'll get the experience that you need," Huntley says.

With SAP being implemented in industries such as chemicals, automotive, electronics, insurance, banking, human resources, oil and communications, a new twist on training is the development of SAP courses

in university curricula. (For information, see <http://sap.mis.cmich.edu/>.)

In addition to training and interpersonal skills, business knowledge is equally important. "The trick is that experience is very important, more so than in other fields because of the risks involved for the company that is trying to implement SAP," explains Mike

SAP Salary Premiums

SAP salary premiums IT hiring managers say they will pay above the average salary for SAP skills:

INDUSTRY	PREMIUM FOR PERMANENT EMPLOYEES	PREMIUM FOR CONSULTANTS
Aerospace	30%	NA
Hardware/software/peripherals	30%	NA
Chemical products	30%	30%
Food and beverage	30%	40%
Construction products	30%	30%
Petroleum	30%	NA
Business services/consulting	30%	30%
Business services/IT	30%	NA
Wholesale/distribution	30%	30%
Financial	30%	30%

SOURCE: COMPUTERWORLD SURVEY, JAN. 1999. NA=NOT AVAILABLE.

Q&A

Kurt Basler, manager of human resources business systems at Equistar Chemicals in Houston, tells Computerworld about the ins and outs of SAP staffing.

SAP implementations are notoriously difficult. What kinds of specific staffing challenges do they present? The immediate staffing difficulty is finding the real competency, whether you're looking for the real strong SAP configurator who knows the system inside and out and can make it do X, Y or Z easily. Or it's that real strong SAP business person out there that understands the inside and out of the plant maintenance module and can help you frame the business questions that you should be asking yourself to get the best out of it, based on what outcomes you want to achieve.

What do IT managers look for in SAP applicants? Depending on the role you're looking for, you're going to look for strong, technical competence in the insides of the product. You're looking for people who have direct knowledge in the application you're trying to implement and enough business savvy to alert you to when maybe you're going down a path that might create some trouble for you, and people who know the business side of it and people with very strong interpersonal skills, analytical skills and an understanding of how the product works.



Will IT managers hire and then train people who are unskilled in SAP? I think you have to, almost. I think you'd like to attract talent that know things. I think most of the time it's going to be extremely difficult to get some of the talent anyway to be exactly where you want them to be.

What kinds of salaries are being

offered to people skilled in SAP? For skilled people, it's certainly in the six digits, and the level of the six digits and bonuses are based on how skilled you are.

What will hiring managers offer to get people skilled in SAP? You're going to have to go with a very fair salary, you're going to probably

have to do an upfront bonus for them, and you may or may not have bonuses based on project completion or time frames. You may have to commit to future opportunities, whether in the SAP sphere or in the business sphere, that they'll have an expanded role. Maybe it's [to] move into a management role post project.

What do you do to retain them? Certainly, you have to compensate, in terms of dollars, very, very competitively. Some do it straight with salaries, some do it with completion bonuses, some do it with bonuses based on how long you're there. I think you also have to try to provide an environment to work in that's not only challenging, but helps them learn more things about SAP about projects, whatever it may be. And I think you may need to do non-money types of recognition, some things to both take the emotion out of sometimes very emotional projects as well as continue to just say thank you.

What sort of career paths can people with skills in SAP expect? On the business side, we've tried to make sure that as we invested the resources in individuals learning SAP that we also prepare them for more advanced positions in the company. If we want to retain that skill, that knowl-

edge and that investment, we've got to make sure that we move them into spots where they're given more responsibility.

How hard is it to find people to do SAP projects? Just looking at the supply-and-demand curve, I think there certainly has been much stronger demand than there is supply. Finding world-class talent with an SAP background is a hard, hard thing to find, and a lot of people are trying to find it.

Why? I think because it's really exploded upon the marketplace in the last three to four years, because of the number of modules there are, the number of companies [that are] implementing. Just their growth outstripped the potential supply.

What advice can IT hiring managers pass on to those seeking jobs in SAP? Someone who doesn't have SAP [experience] but wants to break into it [should] certainly consider the Big Five, because they're expanding their practices and they're looking for talent. If you have talent, but it's not in SAP, you're probably in a bargaining position where you can get in, get on an SAP project and start at the bottom of the knowledge base and there work your way up. —Kim Fulcher Linkins

Carlisle, sales and distribution consultant at GlobalConsulting Strategies Inc. in Endicott, N.Y., an implementation consulting company. "They're doing something that is going to fundamentally change the direction of their company. So they're making a \$30 million investment in a product, and they're just a \$200 million company. They don't want to bring somebody in that has no [business] experience."

Knowledge about your business and SAP can reap big rewards. Salaries for SAP professionals can range from \$60,000 per year to \$180,000 and up, and contractors can expect \$100 to \$130 per hour — but there's a catch. "High travel," Carlisle says. "That's also the plus, but if you've got a family, it's really tough. Unless you're willing to work for about 50% less, you pretty much get to travel the country."

"You really don't have a lot of opportunity to take long-term assignments at home, unless you live in a large metropolitan area," Huntley says. "I'm in a situation where I try to make sure I'm home every weekend, and I still in the back of my mind wonder how long it is going to be before my kids start wondering, 'Who is this strange man who sleeps with Mommy?' That right there's the primary negative side to the contracting environment. [Travel] puts a lot of strain on the family."

On the positive side, Carlisle says, having too much to do all the time and continually meeting new people is attractive. "I get a lot of different perspectives on business and on the world. I get to see a lot of different ways to do business."

To get your foot in the door, SAP professionals recommend looking for a company that's getting ready to implement SAP or even some other enterprise resource planning (ERP) system. "Get in there and find out what it means, what an ERP system is. Find out how to work in those integrated environments," Carlisle says.

Mostly, experts warn, get ready for a strenuous, albeit exciting, work environment.

"The final months before implementation can be extremely stressful, and the hours can become unbearable," says Richard Ward, an independent consultant work-

ing at Wesley Enterprises Inc., a software implementation company in Atlanta.

"The only thing I've heard it compared to was when I was working in Houston. There were folks who had ventured

in and out of NASA," Ward says. "I don't want to by any means compare putting in SAP to some of the things that NASA does. It isn't rocket science. But project management is similar in that you've got an

enormous amount of people working toward one goal and everything has to work together in the end for you to be successful. The culmination of the efforts from so many diverse people from so many diverse

backgrounds is what I have heard people compare to large-scale NASA projects."

Linkins is a freelance writer in Austin, Texas. She can be reached at KPLinkins@aol.com.

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